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A DECADE YOUNG, A CENTURY STRONG

Whitepaper on

Designing a Framework for Asset Tokenisation in India

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Foreword

Asset tokenisation is beginning to reshape financial systems across the world. Policymakers, financial institutions and market participants have acknowledged the efficiency and inclusivity that this technology can create. Tokenisation can enable faster transactions, lower operational and compliance costs, and reduce reliance on intermediaries. It can also make ownership and investment more accessible by breaking high-value assets into smaller and affordable units. One of its most promising features is the ability to bundle and unbundle different rights and claims that sit within a single physical or intangible asset.

The underlying technology can seem complex. However, at a functional level, a token is simply a digital representation of a right, claim or proprietary interest. It usually represents a smaller part of a larger collection of rights. Seen this way, tokenisation becomes an extension of familiar legal and economic ideas rather than an entirely new product.

Although tokenisation is still in the early stages of adoption, the need for regulatory clarity has already become important. For India, this presents an opportunity to develop a thoughtful framework through the participation of policymakers, regulators, industry stakeholders, and users. These stakeholders will need to create taxonomies, define regulatory categories and identify the legal issues that require attention. This whitepaper, titled '***Designing a Framework for Asset Tokenisation in India***', is intended to support that effort.

This paper is a collaborative effort between the National Law School of India University, Bengaluru, and Shardul Amarchand Mangaldas & Co. This paper is authored by **Dr Sudhanshu Kumar**, Associate Professor of Law at NLSIU, Bengaluru; **Ms Shilpa Mankar Ahluwalia**, Head of the FinTech practice group and Co-Head of the Banking & Finance practice group at SAM & Co.; **Mr Karthik Suresh**, Assistant Professor of Law; **Ms Varsha Aithala**, Assistant Professor of Law; **Ms Shinjini Mitra**, Academic Fellow at NLSIU, Bengaluru; and **Ms Purva Anand**, an associate within the firm's Financial Regulatory and FinTech vertical.

We would also like to extend our gratitude to **Ms Manjari Tyagi**, a Partner in the financial regulatory practice at the firm, together with associates **Mr Anurag Singh** and **Ms Lidia Kharmih**, for their valuable contributions. Over the past six months, both NLSIU & SAM engaged in consultations with industry stakeholders and select regulators, which have shaped the issues and recommendations presented in this paper.

Through this paper, we aim to guide the reader through the conceptual, legal and regulatory questions that any Indian framework for tokenisation must address. The first chapter introduces the basic concepts behind tokenisation, describes the token lifecycle and prepares the ground for regulatory analysis. The second chapter examines the legal attributes of tokens, the participants involved in tokenisation, and anchors tokens within existing Indian laws governing contracts, property, securities, payments, advertising, consumer protection, and foreign exchange. The third chapter outlines a practical framework for classifying tokens into securities, investment, and ownership tokens. It explains the features of each category and uses real product examples to illustrate the differences between them. The fourth chapter examines regulatory approaches taken across six international jurisdictions. The final chapter discusses the four typical regulatory approaches towards tokenisation and proposes a regulatory pathway for India.

The intention is not to replace India's existing regulatory or market architecture but to allow tokenised markets to run in parallel, gradually integrating as legal certainty, infrastructure, and supervisory capacity mature.

Accordingly, this concept note seeks both to define the conceptual and legal contours of a modern tokenisation framework and to present a phased regulatory pathway for safe and scalable adoption. It offers a directional policy view, covering taxonomy, design choices, regulatory coordination, and sandbox-led experimentation.

We hope this whitepaper makes a meaningful contribution to the national conversation on digital asset infrastructure and supports India's progress toward a balanced, innovation-friendly, and future-ready regulatory framework for asset tokenisation.

Executive Summary

Introduction to Tokenisation

Asset tokenisation represents a significant shift in the way value, rights and claims associated with assets are conceptualised, recorded and transferred within the financial system. It is broadly understood as the process by which value, rights and claims are digitally represented and stored electronically, usually through decentralised or distributed storage mechanisms, with each such digital representation referred to as a "token" serving as a new form of the traditional legal concept of property.

At its core, **tokenisation** is the digital embodiment of an asset or entitlement in such a manner that the token itself becomes the operative medium through which ownership, possession or other contractual rights are evidenced and transferred. Any asser is theoretically capable of being tokenised. This understanding forms the foundation of the analysis in this paper and aligns with the international approaches adopted by leading global organisations including the OECD, IMF, BIS, IOSCO, FSB and BCBS, whose definitions, although varied in emphasis, converge on the fundamental conceptualisation of tokenisation as the translation of economic value, ownership or contractual rights into a digitally native format capable of circulation on a shared record keeping infrastructure.

The digital representation is therefore not merely a form of digitisation but a unique category of digital asset that enables fractionalisation, efficient investment structures and improved traceability of rights while remaining technologically flexible and not tied to any single ledger architecture.

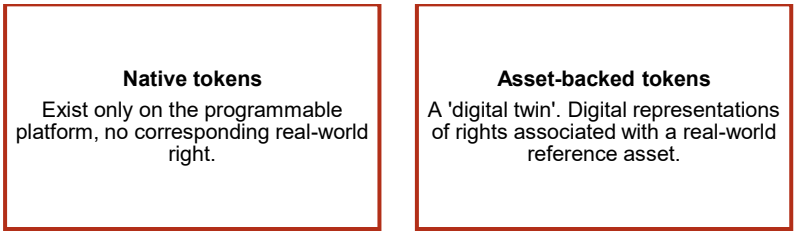
Underlying Technology and Forms of Tokens

Two key technological developments underpin the current trajectory of tokenisation: distributed ledger technology and smart contracts. **Distributed ledger technology** maintains a distributed digital network where each participant or node can add, verify and store information in a shared database or ledger. This ledger is disseminated and synchronised across all nodes, enabling identical maintenance of records without reliance on centralised intermediaries. Blockchain represents a subtype of distributed ledger technology, characterised by the structuring of data into cryptographically secured blocks that are linked chronologically, forming a tamper-evident and tamper-resistant record system.

Smart contracts, in turn, are self-executing programs stored and processed on these digital networks, with their terms encoded upfront and executed automatically upon fulfilment of predetermined conditions. These technological tools introduce programmability into the recording, transfer and settlement of rights, reducing manual intervention and enabling more efficient execution of financial processes.

However, neither distributed ledger technology nor blockchain is a necessary part of tokenisation, as they are merely prominent technological implementations of a broader phenomenon that can be adapted to various digital infrastructures and architectures. The paper therefore avoids tying the definition of tokenisation to any specific technological configuration, recognising that a new product such as tokens should not be defined by its underlying technology.

Tokens themselves take various forms depending on their relationship to the underlying value or asset. **Native tokens** originate directly on digital or programmable platforms and exist exclusively as digital representations, without corresponding off-platform rights. **Asset-backed tokens** serve as digital representations of rights associated with a real-world reference asset, forming a digital twin of the associated value, rights or claims. Tokens may differ substantially in their economic function, rights conferred, regulatory treatment and the nature of the underlying reference asset.



For this reason, classification systems are central to any regulatory framework governing tokenisation.

Proposed Token Taxonomy

This paper proposes the below token taxonomy, taking into account the use case and nature of the reference asset for each token. The nature of each token must be determined on a case-by-case basis, depending on the rights and features of such a token.

1. **Payment tokens** are typically used for transaction settlement, including stablecoins, central bank digital currencies, utility tokens, or cryptocurrencies that serve as mediums of exchange. These fall squarely within the regulatory domain of the RBI and are excluded from the scope of this paper due to their significant monetary policy implications and the distinct regulatory concerns they raise. This paper focuses exclusively on asset tokens comprising securities tokens, investment tokens and ownership tokens.

2. **Securities tokens** represent digital representations of existing capital market instruments and are effectively a newer form of securities. India's progression from physical to dematerialised securities provides a useful context for understanding the natural evolution toward securities tokens, which promise enhanced efficiency, transparency, real-time settlement, and improved collateral mobility.

3. **Investment tokens** represent fractionalised financial interests without granting direct ownership or utilisation rights. They resemble regulated structures such as real estate investment trusts, exchange-traded funds, collective investment schemes, and pooled vehicles. However, the paper notes that investment tokens should not be subsumed under the Collective Investment Scheme Regulations due to conceptual incompatibilities and operational impracticalities. Instead, a tailored framework with targeted safeguards is required.

4. **Ownership tokens** represent proprietary or utilisation rights in the underlying reference asset and constitute digital instruments that evidence transfer and enforce fractional undivided interests in such assets. Custody of the reference asset is essential to ensure that such tokenised representations remain verifiably backed at all times. However, ownership tokens face additional legal complexities, particularly regarding the recognition of fractional ownership under existing property law and the challenge of enforcing on-chain rights in off-chain registries. These factors support the development of a bespoke regulatory regime for ownership tokens.

Classification of Tokens	Reference Asset	Digitally Native or Real World
Payment Tokens *(The reference asset is primarily used for transaction settlement and payment purposes.)*[1]	Commercial bank money (deposits), currency, CBDC	Real World
	Stablecoins and other privately issued money equivalents	Digitally Native
	Utility tokens, cryptocurrencies and other equivalent tokens[2]	Digitally Native
Securities Tokens *(The reference asset is financial instruments used for investment, rather than payment.)*	Money market funds	Real World
	Public equity	Real World
	Sovereign bonds/ treasury bills	Real World
	Corporate listed bonds	Real World
	Municipal bonds	Real World
	Private equity	Real World
	Private debt	Real World
	REITs and InvITs units	Real World
	Receivables	Real World
Investment Tokens *(Tokens provide a financial interest, not being ownership, linked to the reference asset.) (Excludes securities tokens from its scope.)*	Real estate – rental and usufruct share	Real World
	Commodities – e.g. gold usufructs from staking	Can be either

1 Payment tokens fall squarely within the regulatory domain of the RBI and are excluded from the scope of this paper.

2 Including wrapped tokens. A wrapped token is a representation of one cryptocurrency in a manner that makes it compatible with another DLT while keeping its value pegged to the original cryptocurrency. It serves as a bridge between two DLTs. Simply put, a wrapped token is like a stablecoin if it were pegged to any cryptocurrency instead of a fiat currency. For a detailed explanation, see IOSCO, 'Decentralised Finance Report' (December 2022).

Ownership Tokens *(Tokens provide a direct ownership in the reference asset.) (Excludes payment tokens, securities tokens, and investment tokens from its scope.)*	Real estate (land, immovable property)	Real World
	Commodities – gold, art, collectables, crude oil, coffee, carbon credits, etc.	Can be either
	Securities	Real World
	Intellectual Property Rights, brand recognition, goodwill	Real World

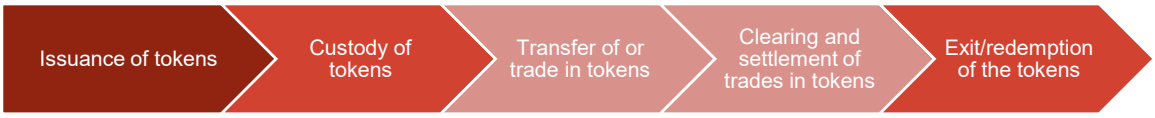
For instance, consider a demarcated plot of land, upon which a leased commercial shop yields a fixed monthly rental income. The land is owned by a special purpose vehicle, 'X'. X, the issuer of tokens, may elect to isolate and tokenise different attributes of this reference asset:

- The financial rights of the reference asset could be isolated and represented through rental tokens, each entitling the holder to a proportionate portion of the rental income. This would be an **investment token**.
- The ownership interest in the underlying land (absent any right to demarcate, evict, or interfere with the leasehold) may be tokenised, each representing a fractional, undivided interest in the land. This would be an **ownership token**.
- The utilisation rights may be tokenised, allowing them to own a share in the land and use, enjoy, demarcate, and even dispose of their interest. This would also be an **ownership token**.
- The equity shareholding of the company X could be tokenised. This would be a **securities token**.
- A token could be issued representing a fractional ownership (one-tenth of an equity share) of the equity shares of the company X. This would also be an **ownership token**, with the equity shareholding of the company being the reference asset.

In this manner, tokenisation allows for rights in a reference asset to be bundled or unbundled, facilitating more efficient value allocation and a wider range of investment and utility possibilities.

The Tokenisation Lifecycle and Key Design Features

The **lifecycle of tokenisation typically involves five core processes**: issuance of tokens, custody of tokens, transfer or trading of tokens, clearing and settlement of trades involving tokens and finally the exit or redemption of tokens at the end of their lifecycle. Alongside these processes lie five key design features: the programmable platform on which tokens are created and transacted, the underlying reference asset that gives value to the token, the mechanism by which the reference asset is valued, the storage and custody rights associated with the reference asset and the mechanism through which redemption of tokens and or the reference asset is facilitated. These features function collectively, ensuring the integrity of the tokenisation process while enabling programmability, automation, secure transferability and enforceability of rights.



The **programmable platform** constitutes a critical element of this structure, operating as a digital infrastructure that maintains a flexible ledger of asset positions and integrates smart contracts capable of automating token creation, transfer and redemption. Programmability may be internally triggered by on-platform events or externally triggered by off-platform data or services, which allows automation based on real-world conditions.

Four categories of programmable platforms are identified: fully centralised networks, private permissioned networks, public permissioned networks and public permissionless networks. These categories differ in terms of who can access ledger data and who can validate transactions with public networks offering the highest level of accessibility and transparency, and private networks limiting participation to trusted or approved parties. Permissioned networks restrict validation rights to selected entities while permissionless networks permit any participant to validate and update the ledger. The choice of platform directly impacts regulatory considerations, including anti-money laundering and know-your-customer compliance, governance structures, operational resilience, and scalability.

CENTRALISED ← → DECENTRALISED

Category	Fully Centralised	Private Permissioned	Public Permissioned	Public Permissionless
Description	Managed by a single entity; strict control over access, operations, and data	Controlled network with approved participants; enterprise-focused	Open to vetted participants; governed by trusted authorities	Open, decentralised network with anyone able to participate
Transaction permissions	Closed access; only trusted parties submit transactions	Closed and selective access; enterprises and counterparties	Restricted access; vetted participants can submit transactions	Open access; no entry barriers, anyone can submit transactions
Data viewability	Strict confidentiality; data visible only to authorised users	Strict confidentiality; default privacy with limited external access	Controlled transparency; privacy measures in place	Fully transparent by default; privacy tools available as needed
Governance model	Highly centralized; governed by a single authority	Highly centralised; narrow onboarding of validated users	Moderately centralised; governed by permissioned entities	Highly decentralised; consensus among independent nodes
Scalability and performance	Very high throughput; optimised for enterprise workloads	High throughput; optimised for predictable enterprise usage	High throughput; regulatory optimised	Varies significantly; consensus-dependent and less predictable
Compliance and regulatory alignment	Highest compliance; audit-ready and regulation-compliant	High compliance; adheres to internal and external standards	Strong compliance; integration with regulatory frameworks	Minimal compliance; depends on user layers or additional tools
Liquidity and market access	Controlled liquidity; ideal for structured transactions	Variable liquidity; access tailored to enterprise needs	Moderate liquidity; dependent on consortium management	High liquidity; broad participation, and global reach
Infrastructure requirements	High barrier to entry; requires significant resources	High barrier to entry; enterprise-grade infrastructure	Moderate barrier; aligned with enterprise protocols	Low barrier; operates on existing networks with minimal setup

Reference Assets Rights and Property Law Treatment

The value of each token other than that of a digitally native token is intrinsically linked to its reference asset. The paper describes how tokenisation enables rights in a reference asset to be bundled or unbundled, reflecting the ability to isolate financial rights, ownership interests, or utilisation rights associated with the underlying asset. For example, rental income from a leased commercial property may be represented as rental tokens, fractional ownership of the land itself may be separately tokenised, and utilisation rights or ownership plus use structures may be created as distinct digital representations. This flexibility enables tokenisation to expand the range of investment possibilities, improve efficiency in value allocation, and offer programmable, auditable, and transparent mechanisms for managing fractionalised interests. However, the principle that a reference asset should not be digitised twice, meaning that no right or claim associated with a reference asset should be represented by more than one set of tokens, must be observed to maintain market integrity.

Tokens are property capable of being subjected to control in a legal sense and offering proprietary rights to the holder. Drawing on the UNIDROIT Principles on Digital Assets, control over a token implies the exclusive ability to prevent others from obtaining substantially all the benefits of the token, the ability to obtain such benefits oneself, and the exclusive ability to change or transfer control. These rights parallel the traditional property law concepts of exclusion, title and transferability. Tokens may also be provided as security to secure obligations, and the process of creating security over tokens interacts with the underlying legal framework governing the reference asset. Control functions as the key determinant of priority between competing security interests in digital assets.

Anchoring Tokens within Existing Indian Laws

India does not currently have a dedicated legal framework governing asset tokenisation. Nevertheless, tokens intersect with multiple areas of law including the Information Technology Act 2000, the Indian Contract Act 1872, the Transfer of Property Act 1882, the Securities Contracts Regulation Act 1956, the Securities and Exchange Board of India Act 1992 and associated regulations, the Companies Act 2013, the Registration Act 1908, the Consumer Protection Act 2019, the Prevention of Money Laundering Act 2002, the Income Tax Act 1961, the Foreign Exchange Management Act 1999 and the Advertising Standards Council of India's VDA advertising guidelines.

The absence of explicit statutory provisions creates ambiguity in relation to key issues such as the validity of smart contracts, the transfer of proprietary rights in tokens, the classification of tokens as securities, derivatives, collective investment scheme units or pooled investment vehicles, taxation of virtual digital assets, anti-money laundering and know your customer compliance and foreign exchange implications. The paper highlights, for example, the risk that certain tokenised structures may inadvertently fall within the collective investment scheme framework, which was historically designed as a protective measure to curb fraudulent fund mobilisation and therefore remains inappropriate for legitimate and innovative digital asset structures.

Cross Jurisdictional Developments

The paper offers an extensive cross-jurisdictional analysis of how leading international financial centres, including the **European Union, Luxembourg, Switzerland, the United Kingdom, Singapore, and the United States**, have addressed asset tokenisation.

Despite differences in approach, a common regulatory principle emerges: tokens should be regulated according to their economic function rather than their technological form. Jurisdictional maturity in tokenisation depends heavily on the clarity of token classification, certainty of legal enforcement, the existence of effective pilot programmes demonstrating practical viability, and supportive regulatory policy frameworks. These factors collectively determine market confidence and the pace of institutional adoption of tokenised assets.

Jurisdiction	Factors for assessing the maturity of the tokenisation market.			
	Clear framework for classification	Certainty of legal enforcement	Active projects	Regulatory/ policy support
European Union	positive	positive	positive	positive
Luxembourg	negative	positive	in progress	in progress
Switzerland	positive	positive	positive	positive
United Kingdom	positive	in progress	in progress	positive
Singapore	negative	positive	positive	positive
United States	negative	negative	positive	in progress

Designing India's Regulatory Approach

Drawing on global experience and OECD analysis, **four principal regulatory approaches** can be identified: the technology-neutral approach, which applies existing regulations irrespective of technological medium, the clarifications and guidance approach whereby regulators issue supervisory guidance within existing frameworks, dedicated tailor made frameworks specifically designed for tokenised markets and the approach of adapting existing policies selectively to address issues unique to digital assets. This paper suggests a mix of the guidance approach and the adapting existing policies approach.

OECD approach	Core idea	Strengths	Limitations / Risks
Technology-neutral	Apply existing regulations to tokenised assets, ignoring the technology layer.	Continuity & legal certainty. Minimises regulatory arbitrage. Fast to implement.	May miss DLT-specific risks (custody of private keys, settlement finality). Industry may still need clarity on grey areas
Clarifications/guidance	Issue clarifications, guidance, FAQs, and no-action letters explaining how the current law applies.	Rapid, flexible, iterative. Gives market actors practical certainty without formal lawmaking. Allows the regulators to grow with the industry.	Soft-law with no statutory force; may still be challenged in a court of law. Patchwork can emerge if guidance is piecemeal
Dedicated, tailor-made frameworks	Enact **bespoke statutes** covering token issuance, DLT market infrastructure, custodians, etc.	Directly tackles novel concepts (token registers, smart contracts). Can create a competitive hub for digital finance. Enables holistic risk controls.	Longer legislative lead-time. Risk of locking in premature rules. Potential fragmentation vis-à-vis legacy regimes
Adapting existing policies	**Targeted amendments** to securities, property or bankruptcy statutes to recognise on-chain records, electronic registers, etc.	Limits disruption to settled doctrines or principles. Addresses the need for written law. Cheaper politically than completely new legislation.	Still leaves wider DLT issues (governance, DeFi) for future work. Multiple small fixes can become complex over time

For India, the appropriate mixture of these approaches must consider domestic market conditions, regulatory capacity, technological readiness, and the country's broader financial technology strategy. India's favourable demographics, vibrant financial technology ecosystem, and strong inter-regulatory collaboration through the Inter-Regulatory Technical Group on Financial Technology provide a conducive environment for the structured development of a tokenisation regime.

The Inter Regulatory Technical Group includes representatives from the Reserve Bank of India, the Securities and Exchange Board of India, the Insurance Regulatory and Development Authority of India, the Pension Fund Regulatory and Development Authority, the International Financial Services Centres Authority, and has operationalised an Inter Operable Regulatory Sandbox to enable testing of cross-regulatory financial innovations. Concurrently, the initiatives of the Securities and Exchange Board of India on fractional ownership platforms, such as Small and Medium Real Estate Investment Trusts, and the Reserve Bank of India's pilots for wholesale central bank digital currency settlement and tokenised money market instruments signal growing institutional comfort with token-based instruments.

The OECD recommends a phased or sequenced approach to developing tokenisation frameworks, beginning with definitional clarity and sandbox experimentation, followed by gradual expansion into mainstream financial markets. In line with this perspective, this paper proposes that **the Inter-Regulatory Technical Group consider issuing a Guidance Note on Asset Tokenisation that establishes a common taxonomy for tokens and outlines a unified regulatory view across financial sector regulators**. Furthermore, although the Inter-Operable Regulatory Sandbox has not historically adopted theme-based cohorts, the **Inter-Regulatory Technical Group could introduce an Asset Tokenisation cohort under the sandbox**, thereby enabling coordinated experimentation with tokenised structures and fostering regulatory convergence.

Technological Considerations for the Indian Framework

The guidance note could **expressly recognise the legal validity of smart contracts**, adopting the proposed definition in this paper, which describes a smart contract as any contract in electronic mode deployed on a programmable platform in which the terms are expressed as computer code and automated upon the occurrence or non-occurrence of a predetermined event collateral to the contract.

- The note could also recommend a hybrid contractual model where smart contract code is supplemented by traditional legible contractual documents that take precedence in case of inconsistency.
- The guidance note may also recommend clarity on applicable law and jurisdiction, as well as technical audits and mechanisms for human intervention in exceptional circumstances.
- The taxonomy of programmable platforms proposed in the paper may be adopted, and the regulatory preference for permissioned networks may be articulated due to considerations of anti-money laundering compliance governance and scalability.

The **integration of a settlement asset, particularly the wholesale central bank digital currency is a critical design choice** to achieve atomic delivery versus payment settlements.

The paper also notes that although **always-on infrastructure** is a potential benefit, it should not be imposed as a regulatory mandate but rather treated **as a design choice appropriate** to each platform.

Suggested Regulatory Model - Overview

The suggested regulatory model includes detailed definitional elements beginning with statutory definitions of **asset tokenisation and tokens**, and incorporating explicit recognition that tokens constitute property capable of being subjected to control. The model recommends adopting the four-part taxonomy of payment tokens, asset tokens, securities tokens, investment tokens, and ownership tokens, and clarifying that classification must be determined on a case-by-case basis, depending on the rights and features of a particular token.

The proposed definition of a **securities toke**n describes it as a token created through asset tokenisation that constitutes an exact digital representation of any securities under Section 2(h) of the Securities Contracts Regulation Act 1956.

- The note must clarify that only exact digital representations qualify as securities tokens and that tokens representing fractional ownership or partial economic rights fall outside this category.
- Securities tokens should be issued as digitally native tokens without underlying physical certificates.
- They must attract the same regulatory requirements applicable to traditional securities, including issuance, listing, disclosure, reporting, market conduct, and investor protection norms.
- The guidance note may also recommend that issuance of securities tokens be supplemented by a whitepaper serving as the primary disclosure document containing a description of economic rights, technical architecture, custody, and settlement

mechanics, risk factors, redemption process, and dispute resolution provisions. Redemption logic may be incorporated within the programmable platform and linked to recognised payment systems to ensure enforceability and auditable execution.

The proposed definition of **an investment token** describes it as a token (other than a securities token) representing a fractional financial value right or claim associated with a reference asset without conferring direct ownership or utilisation rights.

- Investment tokens must be excluded from the collective investment scheme regulations through an explicit regulatory carve-out with a tailored framework.
- Such a framework could impose targeted disclosure, valuation, transparency, and orderly redemption mechanisms while dispensing with requirements inappropriate for digital tokens, such as mandatory listing or restrictive investment conditions.

The proposed definition of an **ownership token** describes it as a token (other than a payment token, a securities token or an investment token) representing ownership, possessory or utilisation rights in a reference asset and conferring a direct interest in such asset.

- Transfers of ownership tokens imply nearly simultaneous transfers of ownership interests in the underlying asset.
- The regulatory approach must examine the token in relation to the underlying asset, ensuring compliance with all applicable laws governing the transfer or creation of security interests in the underlying reference asset.
- Ownership tokens (like investment tokens) require carve-outs from the collective investment scheme regulations and a dedicated regulatory framework that recognises fractional ownership and provides operational safeguards.

Other Key Recommendations

- **Custody must be addressed through a licensing framework** permitting only authorised entities to act as token custodians. Hosted or embedded custody models should be considered the default to ensure recoverability in cases of fraud, loss of private keys, or erroneous transfers. Custodial holdings must be excluded from the custodian's insolvency estate.
- Anti-money laundering and know-your-customer standards apply to all virtual asset service providers.
- **Foreign exchange compliance may adopt a look-through approach** under the Foreign Exchange Management Act, aligning obligations with those applicable to the underlying asset.
- Control must determine priority in secured transactions involving tokens.
- Finally, **the tax regime for tokens must move away from the current flat rate on virtual digital assets** and adopt the same activity same regulation principle: securities tokens should be taxed like securities; investment tokens should face a non-prohibitive rate; and ownership tokens should be taxed at the same or a lower rate than transfers of the underlying real-world asset to reflect the efficiency of tokenised transfers.

Through these components, the paper presents a regulatory model that reconciles innovation with legal certainty, prioritises investor and consumer protection, and positions India to benefit from global developments in tokenised markets while tailoring the framework to domestic realities. It proposes a coordinated regulatory approach anchored in taxonomy, technological clarity, targeted safeguards, and inter-regulatory collaboration, enabling India to move from pilot projects to a scalable and interoperable tokenisation regime aligned with international standards yet responsive to local priorities.

List of Abbreviations

Abbreviation	Meaning
2017 FINMA Guidelines	FINMA's Guidelines on Regulatory Treatment of Initial Coin Offerings, 2017
2018 FINMA Guidelines	FINMA's Guidelines for enquiries regarding the regulatory framework for ICOs, 2018
2019 FINMA Guidelines	FINMA's Guidelines on Payments on the blockchain, 2019
AIF Regulations 2012	SEBI (Alternative Investment Funds) Regulations, 2012
AIFs	Alternative investment funds
AMC	Asset management company
AML	Anti-money laundering
AML/CFT	Anti-Money Laundering / Countering the Financing of Terrorism
AML/KYC	Anti-money laundering / know-your-customer
AMLA	Anti-Money Laundering Act (Switzerland)
AMLO-FINMA	Anti-Money Laundering Ordinance of FINMA
ARTs	Asset-Referenced Tokens under MiCA (EU)
ASCI	Advertising Standards Council of India
ASCI VDA Guidelines 2022	ASCI's Guidelines for Advertising of Virtual Digital Assets and Linked Services, 2022
Basel Committee	Basel Committee on Banking Supervision
BIS	Bank for International Settlements
CA 2013	(Indian) Companies Act, 2013
CBDC	Central Bank Digital Currency
CFTC	Commodity Futures Trading Commission (US)
CIMC	Collective investment management company
CIS	Collective investment scheme
CIS Regulations 1999	SEBI (Collective Investment Schemes) Regulations, 1999
CISA	Collective Investment Schemes Act (Switzerland)
CMU	Central Moneymarkets Unit (Hong Kong)
Code	Swiss Code of Obligations (Switzerland)
Contract Act 1872	Indian Contract Act, 1872
CPA 2019	(Indian) Consumer Protection Act, 2019
CSSF	Commission de Surveillance du Secteur Financier (Luxembourg)
Dave Committee	Committee on Collective Investment Schemes, headed by Dr. S. A. Dave
Dave Committee Report	Dave Committee's (Final) Report on Collective Investment Schemes dated April 5, 1999
DEA	Department of Economic Affairs (India)
DFS	New York State Department of Financial Services (US)

Abbreviation	Meaning
DLT	Distributed Ledger Technology
DLT Law	Distributed Ledger Technology Act, 2020 (Switzerland)
DPI	Digital Public Infrastructure
DvP	Delivery versus Payment
E-Commerce Rules 2020	Consumer Protection (E-Commerce) Rules, 2020
EMIs	Electronic Money Institutions
EMRs	Electronic Money Regulations, 2011 (UK)
EMTs	E-Money Tokens under MiCA (EU)
ESMA	European Securities and Markets Authority (EU)
ETF	Exchange-Traded Fund
EU	European Union
Export Regulations 2015	FEMA (Export of Goods & Services) Regulations, 2015
FATF	Financial Action Task Force
FATF Guidance	FATF's Updated Guidance for a Risk-Based Approach to Virtual Assets and Virtual Asset Service Providers
FCA	Financial Conduct Authority (UK)
FEMA 1999	(Indian) Foreign Exchange Management Act, 1999
FINMA	Financial Market Supervisory Authority (Switzerland)
FinSA	Financial Services Act (Switzerland)
FIU-Ind	Financial Intelligence Unit – India
FIU-Ind Guidelines 2023	FIU-Ind's 'AML & CFT Guidelines for Reporting Entities Providing Services Related to Virtual Digital Assets', which came into effect on March 10, 2023
FMIA	Financial Market Infrastructure Act (Switzerland)
FOPs	Fractional ownership platforms
FSAA 2001	Financial Advisers Act, 2001 (Singapore)
FSB	Financial Stability Board
FSMA	Financial Services and Markets Act (UK)
FSMA 2022	Financial Services and Markets Act, 2022 (Singapore)
FUTP Regulations 2003	SEBI (Prohibition of Fraudulent and Unfair Trade Practices relating to Securities Market) Regulations, 2003
GENIUS Act	US' Stablecoins Act
GoI	Government of India
HK Government	The Government of the Hong Kong Special Administrative Region (Hong Kong)
ICOs	Initial coin offerings
Identified Exceptions	Refer to footnote 137.
IFSCA	International Financial Services Centres Authority
IMF	International Monetary Fund
Import Regulations 2016	Master Direction – Import of Goods and Services released by the RBI on January 01, 2016

Abbreviation	Meaning
IoRS	Inter-operable Regulatory Sandbox
IOSCO	International Organization of Securities Commissions
IRDAI	Insurance Regulatory and Development Authority of India
IRTG on FinTech	Inter-Regulatory Technical Group on FinTech
IRTG Regulators	Collectively RBI, SEBI, IRDAI, PFRDA, and IFSCA
IT Act 2000	(Indian) Information Technology Act, 2000
KMP	Key managerial personnel
LBMA	London Bullion Market Association
LRS Guidelines 2016	Master Direction – Liberalized Remittance Scheme released by the RBI on January 01, 2016
MAR	Market Abuse Regulation (EU)
MAS	Monetary Authority of Singapore
MCA	Ministry of Corporate Affairs
MeitY	Ministry of Electronics and Information Technology
MF Regulations 1996	SEBI (Mutual Funds) Regulations, 1996
MFs	Mutual funds
MiCA	Markets in Crypto-Assets Regulation (EU)
MiFID II	Markets in Financial Instruments Directive II (EU)
MoF	Ministry of Finance
NPCI	National Payments Corporation of India
NYDFS	New York State Department of Financial Services (US)
OECD	Organization for Economic Co-operation and Development
PAXG	PAX Gold (token backed by physical gold)
PFRDA	Pension Funds Regulatory and Development Authority
PMLA 2002	Prevention of Money Laundering Act, 2002
PSA 2019	Payment Services Act 2019 (Singapore)
RAO	Regulated Activities Order, 2001 (UK)
RBI	Reserve Bank of India
Registration Act 1908	(Indian) Registration Act, 1908
REIT	Real Estate Investment Trust
REIT Regulations 2014	SEBI (Real Estate Investment Trusts) Regulations, 2014
REIT Regulations 2024 Amendment	SEBI (Real Estate Investment Trusts) (Amendment) Regulations, 2024
RTGS	Real-Time Gross Settlement
SARFAESI 2002	Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest Act, 2002
SCRA 1956	(Indian) Securities Contracts (Regulation) Act, 1956
SDX	SIX Digital Exchange (Switzerland)

Abbreviation	Meaning
SEBI	Securities and Exchange Board of India
SEBI Act	Securities Exchange Board of India Act, 1992
SEC	Securities and Exchange Commission (US)
SESTA	Stock Exchange Act (Switzerland)
SESTO	Stock Exchanges and Securities Trading Ordinance (Switzerland)
SESTO	Stock Exchanges and Securities Trading Act (Switzerland)
SFA 2001	Securities and Futures Act, 2001 (Singapore)
SFA 2001	Securities and Futures Act 2001 (Singapore)
SM REITs	Small and Medium Real Estate Investment Trusts
SNB	Swiss National Bank
tCHF	Tokenised Swiss Franc
TPA 1882	(Indian) Transfer of Property Act, 1882
UK	United Kingdom
UPI	Unified Payments Interface
US	United States of America
VASPs	Virtual Asset Service Providers
VDAs	Virtual Digital Assets
wCBDC	Wholesale Central Bank Digital Currency
WEF	World Economic Forum

Chapter 1: Introduction to Asset Tokenisation

Over the past five years, asset tokenisation has progressed from proof-of-concept to a measurable market segment. Globally, the notional value of real-world assets recorded on distributed ledgers is estimated to exceed USD 600 billion, according to recent analyses by the Bank for International Settlements ("**BIS**") and the World Economic Forum ("**WEF**"). Multiple official studies, including those by the WEF and S&P Global, forecast that the market for tokenised assets could reach between USD 10 trillion and USD 16 trillion by 2030 as traditional securities, cash deposits, and alternative assets migrate to programmable tokens.[3] India's tokenisation market, currently valued at around USD 3 billion, is projected to reach USD 100 billion by the decade's end, driven by regulatory initiatives in GIFT City, real estate investment trust ("**REIT**") reforms, and adoption in trade finance and supply-chain lending. [4] Key players are enabling fractional ownership of real estate and infrastructure, primarily within GIFT City's regulatory sandbox.[5]

Early commercialisation of tokenisation is concentrated in high-value, high-friction asset classes. Financial instruments, especially tokenised U.S. Treasury bills, money-market funds, and investment-grade bonds, lead in live tokenised value, with platforms like JP Morgan's Onyx and Goldman Sachs' Digital Asset Platform at the forefront of institutional adoption. [6] Real estate follows closely, with projects ranging from the St. Regis Aspen Resort in the U.S. to fractionalised commercial portfolios in Singapore, enabling fractional ownership, round-the-clock trading, and automated income distribution. Commodities and precious metals, such as HSBC's tokenised gold and various carbon-credit pilots, are also gaining traction, leveraging smart contracts for provenance, compliance, and broader investor access. These trends are global, with major international organisations and financial institutions actively piloting and scaling tokenisation initiatives, signalling a shift toward digital asset infrastructure.

Policymakers globally are enacting legislation to recognise ledger-based securities, with Switzerland, Germany, Luxembourg, and the EU (via MiCA and the DLT pilot regime) leading the way. [7] International bodies such as the BIS, Financial Stability Board ("**FSB**"), and WEF have highlighted both the efficiency gains and regulatory challenges, calling for harmonised standards to prevent fragmentation.[8] Beyond Europe, initiatives like Singapore's Project Guardian, Hong Kong's tokenised green bond, the UK's Financial Markets Infrastructure Sandbox, and US regulatory pilots reflect widespread official engagement with tokenisation.[9]

India is at a pivotal moment, with the International Financial Services Centres Authority's ("**IFSCA**") February 2025 consultation paper proposing a comprehensive real-world asset tokenisation framework for GIFT City covering issuance, custody, trading, and settlement. SEBI's initiatives (such as Small and Medium REITs and exploration of tokenised mutual funds) alongside RBI's wholesale central bank digital currency ("**CBDC**") pilots, further strengthen the regulatory landscape.[10] Recently, the RBI announced the conceptualisation of the Unified Markets Interface, which "*will have the capability to tokenise financial assets and settlements using wholesale CBDC*"[11]. Supported by robust FinTech talent, digital public infrastructure (like the India Stack), and proactive regulation, India is well-positioned to lead the next era of tokenised assets.

Meaning of Tokenisation

Tokenisation is a process by which value, rights, and claims are represented digitally and stored electronically, usually through decentralised or distributed storage mechanisms. This digital representation – each a 'token' – is merely a new form of the traditional legal concept of property.

3 Jersey Finance, 'Jersey Finance on laying the groundwork for tokenisation' (Private Equity International, 1 May 2024).

4 Antier Solutions, 'Asset Tokenization in India: An Opportunity to Enter the $100B Market' accessed 10 September 2025.

5 Vivek Mishra and Vatsal Srivastava, 'Asset Tokenisation in the Indian Real Estate Sector' (Lexology, January 2025) accessed 10 September 2025.

6 'Asset Tokenization: What It Is and How It Works' (Chainlink, 21 May 2025) accessed 21 May 2025.

7 'How will asset tokenization transform the future of finance?' (World Economic Forum, 8 August 2025) accessed 10 September 2025.

8 L Sing Chiong, 'Tokenisation in financial services – pathways to scale' (Speech, Bank for International Settlements, 4 November 2024) accessed 10 September 2025.

9 'Tokenization in Financial Services' (Baker McKenzie, 27 June 2025) accessed 10 September 2025.

10 International Financial Services Centres Authority, Consultation Paper on Regulatory Approach towards Tokenization of Real-World Assets (26 February 2025).

11 Malhotra, Sanjay, Driving inclusive and sustainable growth through digital public infrastructure and FinTech (Keynote address by the Governor of the Reserve Bank of India at the Global Fintech Fest, Mumbai, 8 October 2025) BIS-Central Bankers' Speeches https://www.bis.org/review/r251014b.pdf accessed 30 October 2025.

The Underlying Technology

The advent of two technological innovations underpins the increasing adoption of tokenisation – distributed ledger technology ("**DLT**") and smart contracts. DLT is a distributed digital network that maintains a database of records (a 'distributed ledger') – wherein every network participant (each a 'node') can add, verify, and store information in the ledger. This ledger is disseminated, synchronised and maintained identically across nodes, eliminating the need for intermediaries.[12] DLT systems use a consensus mechanism, where all nodes need to achieve agreement with every other network participant on the state of the ledger. This technology marks a significant shift from traditional centralised databases, which store data in a single repository (usually with backup support) and depend on an administrative entity for operation, management, and interactions with those accessing or submitting data.[13] To simplify the consensus mechanism, some DLT models have two sub-categories of nodes: 'full nodes' and 'light nodes'. The light nodes are passive participants of the DLT, which do not maintain a copy of the ledger, and which do not participate in the consensus mechanism to validate transactions.[14]

Blockchain is a subtype of DLT. Blockchain stores data in secure blocks linked by cryptographic hashes.[15] At its core, blockchain is a tamper-evident and tamper-resistant distributed ledger that enables network participants to record transactions in a shared, append-only ledger through the consensus mechanism. Each transaction is cryptographically signed and grouped into blocks, which are then linked together in chronological order (hence, the name). The addition of each new block makes modification of earlier blocks difficult, ensuring transparency, traceability, and resilience against data manipulation.[16] New blocks are replicated across copies of the ledger within the network. This fosters trust, allowing parties to rely on a single version of the truth and eliminating the need for reconciliation or matching.[17]

Smart contracts are self-executing programs stored and processed in a DLT system.[18] The terms of the agreement are encoded in its programming upfront and are directly executed once certain pre-determined conditions are fulfilled.[19] Smart contracts bring programmability to the blockchain. DLT and smart contracts are a prominent technological implementation for tokenisation, but they are not a necessary defining feature of the tokenisation process.

Types of Tokens

Tokens can be of two types: (a) asset-backed tokens, and (b) native tokens. Tokens can be created through the issuance of new tokens directly on the digital/ programmable platform. Such tokens are termed as 'native tokens', which are "*built directly*" and "*live exclusively"* as a digital representation[20]. Tokens can also be created as a digital representation of the rights associated with a real-world asset, which also exists otherwise off the platform (termed the 'reference asset'). Such tokens representing a 'digital twin' of the existing asset are termed 'asset-backed tokens'. [21]

Defining 'Tokenisation' by Analysing Existing Definitions.

Tokenisation (and in turn 'asset tokenisation') lacks a universally accepted definition.[22] A review of leading international definitions of asset tokenisation reveals both commonalities and divergences in scope, technological emphasis, and legal nuance. While

12 Monetary Authority of Singapore, 'Blockchain/Distributed Ledger Technology (DLT)' (MAS); World Bank, Distributed Ledger Technology & Secured Transactions: Legal, Regulatory and Technological Perspectives (Guidance Note 3, 2020).

13 World Bank Group, Distributed Ledger Technology & Secured Transactions: Legal, Regulatory and Technological Perspectives (Guidance Note 3, May 2020) accessed 1 February 2025.

14 IOSCO, 'Research Report on Financial Technologies (Fintech)' (IOSCO Policy Committee, 2017); D Yaga et al, Blockchain Technology Overview (NISTIR 8202, National Institute of Standards and Technology, April 2018) 1–4

15 K E Busch, 'Blockchain: Novel Provenance Applications' (Congressional Research Service, 21 April 2022), https://crsreports.congress.gov/product/pdf/R/R47064 accessed February 2025.

16 For an explainer blockchain technology see Appendix I (Blockchain Explained: A techno-functional guide) of NITI Aayog, Blockchain India strategy. NITI Aayog, Blockchain: The India Strategy – Part I (Draft Discussion Paper, January 2020) https://www.niti.gov.in/sites/default/files/2020-01/Blockchain_The_India_Strategy_Part_I.pdf accessed 30 October 2025. Alternatively, refer to Dylan Yaga, Peter Mell, Nik Roby and Karen Scarfone, Blockchain Technology Overview (NISTIR 8202, October 2018) 50.

17 See, S Ramachandran and others, The Future of Distributed Ledger Technology in Capital Markets (JP Morgan & Boston Consulting Group 2022) https://media-publications.bcg.com/The-Future-of-Distributed-Ledger-Technology-in-Capital-Markets.pdf accessed 3 March 2025.

18 Smart Contracts Alliance (Chamber of Digital Commerce), Smart Contracts: Is the Law Ready? (September 2018) 12.

19 Some literature compares smart contracts to vending machines. Just as a vending machine operates automatically when certain conditions are met (once you insert money and make a selection), a smart contract executes the terms of an agreement once the predefined conditions are satisfied, without requiring further interventions. See S Jovanović, UNIDROIT Principles of International Commercial Contracts and New Frontiers of Blockchain, Smart Contracts and Digital Assets (UNIDROIT Study No 5/2024) accessed 13 April 2025.

20 OECD, The Tokenisation of Assets and Potential Implications for Financial Markets (OECD Blockchain Policy Series, 2020) 12 accessed 25 March 2025; H-W Teng, 'Mitigating Digital Asset Risks' (SSRN, Dec 2023) https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4594467 accessed 25 March 2025.

21 R Heines and others, 'The Tokenization of Everything: Towards a Framework for Understanding the Potentials of Tokenized Assets' (2021) PACIS 40.

22 OECD (n 20) 11.

some definitions focus on the underlying technology, others consider the features of tokenisation, the types of assets tokenised, and the linkages, if any, between reference assets and digital tokens.

Figure 1 Analysis of existing authoritative definitions of 'tokenisation'

- **The Organization for Economic Co-operation and Development ("OECD"):** OECD defines asset tokenisation as *"the representation of pre-existing real assets on the ledger by linking or embedding by convention the economic value and rights derived from these assets into digital tokens created on the blockchain"*. [23] This definition is notable for its explicit reference to distributed ledgers and blockchain, and for its focus on pre-existing real assets. While it captures the core idea of representing economic value and rights digitally, its technological specificity (i.e., "blockchain") may be unnecessarily restrictive. Furthermore, the focus on "pre-existing real assets" may exclude natively digital or newly created assets.
- **The Financial Stability Board:** The FSB describes tokenisation as *"the issuance or representation of assets in the form of digital tokens using technologies such as distributed ledgers"*. [24] This definition is broader, encompassing both issuance and representation, and is less prescriptive about the underlying technology ("such as distributed ledgers"). Interestingly, this definition was adopted for the GIFT IFSC by the IFSCA in its consultation paper for the tokenisation of real-world assets[25]
- **The Basel Committee on Banking Supervision ("Basel Committee"):** The Basel Committee defines tokenisation as "*the process of representing claims digitally on a programmable platform*"[26]. This definition is technologically neutral and highlights programmability, but it is somewhat vague, as "claims" could refer to a wide range of legal or economic interests, and the definition does not specify the link to underlying assets.
- **The International Organization of Securities Commissions ("IOSCO"):** IOSCO's definition is "*the process of digitally representing an asset or ownership of an asset. A token represents an asset or ownership of an asset. Such assets can be currencies, commodities, securities or properties*". [27] This is a clear and inclusive definition, covering both the asset and ownership, and providing examples. However, it does not address the technological or legal mechanisms by which representation occurs.
- **The World Economic Forum:** The WEF defines tokenisation as "*the process of using a programmable ledger to digitally represent the ownership of an asset … in a transferable format. A 'token', in this context, represents something of value (e.g. a claim on or digitized version of a real or financial asset) that can be legally and operationally exchanged on a programmable ledger*".[28] This definition is comprehensive, emphasising programmability, transferability, and legal/operational exchange, but again refers specifically to "programmable ledgers," which may be limiting.
- **International Monetary Fund ("IMF"):** The IMF states, "*Tokenization refers to the creation of assets or representations of assets on a digital token ledger. A digital token refers to an asset or a representation of an asset on a digital ledger that is shared, trusted, and programmable. Sharedness refers to the capacity of transacting parties to possess, acquire, and transfer assets on the ledger. Trust depends on the accuracy of asset ownership and the predictability of transaction orders. Programmability means that assets—the financial applications associated with them, such as repos and swaps—and the conditions for transactions, including the investors permitted to hold certain assets, can all be hard coded into, and executed by, the ledger*". [29] This is the most detailed definition, introducing key operational concepts such as sharedness, trust, and programmability.
- **The Bank of International Settlements:** The BIS defines tokenisation as a process by which value, rights, and claims are represented digitally and stored electronically, usually through decentralised or distributed storage mechanisms.[30] This definition is broad, focusing on the digital representation and storage of value, rights, and claims, and is technologically neutral.

The above definitions share a common conceptual core: each understands tokenisation as an act of translating economic value, ownership or contractual claims into a digitally native format capable of circulation on a shared record-keeping infrastructure. The digitisation of assets may not always be tokenisation. Tokenisation represents a special type of digitisation that supports fractional ownership and/or investment[31]. The OECD, FSB, IOSCO, WEF, IMF and BIS explicitly highlight a link between a pre-existing

23 Ibid.

24 Financial Stability Board (FSB), The Financial Stability Implications of Tokenisation (22 October 2024) 4.

25 International Financial Services Centres Authority (IFSC Authority), Consultation Paper on Regulatory Approach Towards Tokenization of Real-World Assets (26 February 2025) 10.

26 Basel Committee on Banking Supervision, Digitalisation of Finance (BIS, October 2024) 9.

27 IOSCO, Research Report on Financial Technologies (Fintech) (2017) 51.

28 World Economic Forum (WEF), Asset Tokenization in Financial Markets: The Next Generation of Value Exchange (2025) 7.

29 I Agur et al, 'Tokenization and Financial Market Inefficiencies' (IMF Fintech Note 2025/001, 2025) 1–2.

30 Bank for International Settlements, Annual Economic Report Part III (June 2023) 89 accessed 14 April 2025; Hague Conference on Private International Law, Prel. Doc.: Private Int'l Law Issues Relating to Digital Tokens (2024) 1 accessed 14 April 2025.

31 Giorgi Sazandrishvili, 'Asset Tokenization in Plain English' (2020) 31(2) Corporate Accounting and Finance 68.

asset and its digital surrogate, whereas the Basel Committee frames tokenisation more abstractly as the "representation of claims", a formulation that accommodates both asset-backed and purely native tokens. All definitions therefore recognise that tokenisation is primarily a legal-economic construct, rather than a purely technical one, in which the rights embodied in the token must faithfully reflect the rights inherent in the underlying asset or claim.

There are, however, some nuanced divergences. First, the scope of the underlying subject matter varies. The OECD is narrowest, confining itself to "real assets", thereby excluding claims such as receivables or derivatives and digitally native tokens. By contrast, IOSCO, FSB, WEF and IMF adopt an intentionally broad scope encompassing currencies, securities, commodities and other property interests, while the BIS speaks in general terms of "value, rights and claims". Secondly, the definitions differ in the emphasis they place on functional attributes. The IMF and WEF underscore "programmability", "sharedness", and "trust" as defining characteristics, signalling an expectation that tokenised instruments support automated performance and auditable consensus. The Basel Committee introduces the notion of a "programmable platform" but does not elaborate on governance or trust assumptions, whereas the FSB and BIS remain largely silent on functional features, focusing instead on the fact of digital representation. Thirdly, only the WEF definition expressly references legal and operational transferability, acknowledging that the efficacy of tokens depends on enforceability and settlement finality, an aspect left implicit by the other bodies.

From a strengths perspective, the IMF offers the most granular articulation by decomposing tokenisation into its functional primitives (shared ledgers, verifiable ownership and embedded logic). The WEF complements this by foregrounding transferability and explicitly linking tokens to legally recognisable claims, a prerequisite for secondary market development. The FSB and BIS definitions are concise and technology-neutral. The Basel Committee's economy of language is likewise advantageous for prudential rulemaking, although its abstraction may impede practical application. The OECD's focus on "pre-existing real assets" is helpful for clarifying the boundaries of asset-backed tokenisation, but risks excluding synthetic or natively digital instruments that Indian markets may soon encounter. Conversely, IOSCO's wide-ranging formulation captures the full spectrum of tokenisable assets but provides limited guidance on operational or legal mechanics, potentially complicating supervisory convergence.

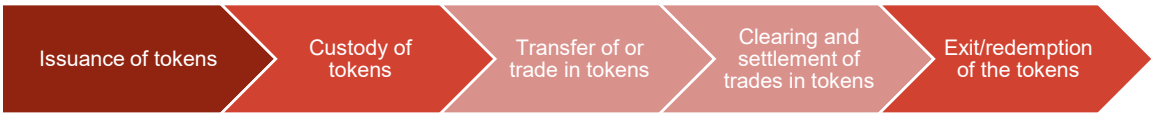
At its core, tokenisation is the digital embodiment of an asset or entitlement in such a manner that the token becomes the operative medium through which ownership, possession or contractual rights are evidenced and transferred. This function of tokenisation is not inherently tied to any specific ledger architecture, consensus protocol or cryptographic technique, allowing the concept to evolve with technological progress. Given the evolving regulatory and technological landscape, it is important to avoid explicit references to the 'blockchain' or 'distributed ledgers', as done by the OECD and WEF definitions. DLT, and particularly blockchain, is a prominent technological implementation for tokenisation, but it is not a necessary defining feature of a token.[32] Instead, the focus should be on digital or programmable platforms, as done by the Basel Committee and BIS definitions.

Drawing on the above analysis, for the purposes of this paper, "asset tokenisation" refers to the process of digitally representing value, rights, or claims on a digital or programmable platform, whether in relation to a pre-existing reference asset or otherwise, to enable secure and verifiable ownership and to facilitate legal and operational transferability.

The 'Tokenisation Lifecycle'

A tokenisation lifecycle typically involves the following five processes: (a) issuance of tokens, (b) custody of tokens, (c) transfers of or trade in tokens, (d) clearing and settlement of trades in tokens, and finally, at the end of the lifecycle (e) exit/redemption of the tokens.[33]

Figure 2 The 'tokenisation lifecycle'



The Five Design Features

Linked to the issuance and custody of tokens are the following five design features typically underlying the process of asset tokenisation: (a) the digital/programmable platform; (b) the reference asset; (c) a mechanism to assess the value of the reference

32 IMF Fintech Note 2025/001, 2025 (n 29) 1–2.
33 IFSC Authority (n 10).

asset; (d) the storage and custody rights for the reference asset; and (e) a mechanism to facilitate redemption of the tokens and/or the reference asset.[34]

The Underlying 'Programmable Platform'

A 'programmable platform' refers to a digital infrastructure that maintains a flexible ledger of asset positions and allows for the embedding of executable applications known as 'smart contracts.' These smart contracts automate the creation, transfer, and redemption of tokens. The platform on which these tokens are issued serves as the technological medium for recording and verifying ownership, possession, or other contractual rights. In essence, it functions like a physical ledger, with one key distinguishing feature: it is programmable. By embedding smart contracts into such platforms, actions can be automated once predetermined criteria are met. This leads to greater efficiency, predictability, and trust, since smart contracts are established in advance (once the conditions coded into them are fulfilled, there is little to no opportunity for human intervention to prevent the execution of the programmed action).

Programmability can occur in two ways: (a) 'internally' i.e., when smart contracts are directly integrated into the token or platform itself, and their execution is triggered by events occurring on the platform (such as the transfer of tokens); or (b) 'externally' i.e., when smart contracts interact with off-platform data or services to initiate outcomes (such as settlement, custody, or reporting), allowing for automation based on real-world events and conditions.[35] In both scenarios, the platform eliminates manual intervention by ensuring that "if-this-then-that" conditions are consistently enforced.

By consolidating the processes of issuance, trading, collateral management, and post-trade reconciliation through smart contracts, programmable platforms can shorten the lifecycle of transactions and minimise reconciliation frictions, all while maintaining regulatory oversight (as smart contracts can be subject to audit requirements). There are four main forms of programmable platforms, ranging from the most centralised to the most decentralised: (a) fully centralised; (b) private permissioned; (c) public permissioned; and (d) public permissionless digital ledger networks. Figure 3 presents a comparative analysis of these four differing programmable platforms.

The first component of the taxonomy ('public' and 'private') addresses who is allowed to access and view the data on the network. Public networks are open to any entity, allowing them to read, verify, and submit transactions. All ledger data is publicly visible, ensuring transparency is built in. In contrast, private networks are restricted and only approved participants can see data or run nodes. The ledger is not publicly visible; it is shared only among trusted or known entities. The second component of the taxonomy ('permissionless' and 'permissioned') addresses who is allowed to validate, update or confirm new transactions on the platform. In permissionless networks, any entity participating in the network can validate transactions. In contrast, in permissioned networks, only approved participants are allowed to validate transactions.

34 Adapted from F Carapella et al, 'Tokenization: Overview and Financial Stability Implications' (Board of Governors of the Federal Reserve System, Discussion Paper 2023-060, 2023) https://doi.org/10.17016/FEDS.2023.060 accessed February 2025.

35 Bank for International Settlements, Tokenisation in the context of money and other assets: concepts and implications for central banks (Joint BIS/CPMI Report to G20, Oct 2024) 8.

Figure 3 Comparative chart of the types of programmable platforms[36]

CENTRALISED ⟵ ⟶ DECENTRALISED

Category	Fully Centralised	Private Permissioned	Public Permissioned	Public Permissionless
Description	Managed by a single entity; strict control over access, operations, and data	Controlled network with approved participants; enterprise-focused	Open to vetted participants; governed by trusted authorities	Open, decentralised network with anyone able to participate
Transaction permissions	Closed access; only trusted parties submit transactions	Closed and selective access; enterprises and counterparties	Restricted access; vetted participants can submit transactions	Open access; no entry barriers, anyone can submit transactions
Data viewability	Strict confidentiality; data visible only to authorised users	Strict confidentiality; default privacy with limited external access	Controlled transparency; privacy measures in place	Fully transparent by default; privacy tools available as needed
Governance model	Highly centralized; governed by a single authority	Highly centralised; narrow onboarding of validated users	Moderately centralised; governed by permissioned entities	Highly decentralised; consensus among independent nodes
Scalability and performance	Very high throughput; optimised for enterprise workloads	High throughput; optimised for predictable enterprise usage	High throughput; regulatory optimised	Varies significantly; consensus-dependent and less predictable
Compliance and regulatory alignment	Highest compliance; audit-ready and regulation-compliant	High compliance; adheres to internal and external standards	Strong compliance; integration with regulatory frameworks	Minimal compliance; depends on user layers or additional tools
Liquidity and market access	Controlled liquidity; ideal for structured transactions	Variable liquidity; access tailored to enterprise needs	Moderate liquidity; dependent on consortium management	High liquidity; broad participation, and global reach
Infrastructure requirements	High barrier to entry; requires significant resources	High barrier to entry; enterprise-grade infrastructure	Moderate barrier; aligned with enterprise protocols	Low barrier; operates on existing networks with minimal setup

Reference Assets

The value of each token is intrinsically tied to a reference asset.[37] The rights that a token holder enjoys in relation to this reference asset are defined by the token's terms, typically embedded in its underlying smart contracts. Tokenisation is a process that can be applied to all kinds of property[38]. The reference asset underlying a digital token can be either a real-world asset or a digitally native asset[39] and the real-world asset could also be tangible or intangible.

While any asset is capable of being tokenised, suitability of a reference asset for tokenisation is determined by several interrelated factors, including the asset's divisibility, liquidity, regulatory environment, and the robustness of its legal title or ownership structure.

(a) Assets that are **inherently illiquid** are particularly attractive candidates, as tokenisation can facilitate fractional ownership and secondary market trading, thereby enhancing liquidity and broadening investor access.
(b) Assets locked in **physical forms** benefit from enhanced security due to their immobilisation, while tokenisation improves the tradability and liquidity of these assets.
(c) Assets with **heavy administrative requirements or intricate ownership structures** can be streamlined through programmable smart contracts and shared records.
(d) Assets that can **serve multiple functions** in markets are strong candidates for tokenisation because of their composability.
(e) Assets with clear and **enforceable legal rights, transparent valuation mechanisms**, and **established market demand** are more amenable to tokenisation, as these characteristics help mitigate legal and operational risks.

36 WEF (n 28) 48–49.
37 Here, our discussions do not include digitally native tokens.
38 Here, the term 'property' is used in its widest connotation. It includes any bundle of rights having value that can be subject to ownership and/or control.
39 An alternative taxonomy for this distinction is 'off-chain' and 'on-chain' assets. This taxonomy is typically used when the programmable platform is a blockchain.

Market demand and institutional uptake play a decisive role. Assets with **strong institutional demand** are more likely to see early adoption. In markets with low infrastructure maturity, tokenisation can leapfrog existing inefficiencies by providing custody, settlement, and exchange solutions digitally. Likewise, assets in **unstructured Over-the-Counter ("OTC") markets** (such as private placements or informal commodity trades) can be **brought into more transparent, programmable environments**. Further, assets with l**imited divisibility** (such as real estate or large-denomination sovereign bonds) benefit from fractionalisation, while regulatory readiness ensures that tokenisation can proceed within established legal frameworks.[40] In terms of regulatory prioritisation, asset classes that combine **high value with low liquidity and complex transfer processes** should be at the forefront of tokenisation initiatives. Real estate, private credit, infrastructure, and alternative investments stand out, given their **traditionally high barriers to entry** and **limited accessibility** for retail investors. Conversely, highly liquid and standardised assets, such as listed equities or government bonds, may offer fewer immediate benefits from tokenisation, as existing market infrastructures already provide efficient trading and settlement. Ultimately, the prioritisation of asset classes should be guided by the potential for tokenisation to enhance the asset's tradability, efficiency, or market reach.

Token Taxonomy

This paper proposes the following taxonomy for tokens, depending on their use case and the nature of their underlying reference asset:

(a) **Payment Tokens:** These tokens are primarily used for transaction settlement and payment purposes. The reference assets underlying these tokens include currency equivalents such as commercial bank money, CBDCs, and stablecoins, as well as utility tokens and cryptocurrencies that serve as mediums of exchange.

(b) **Securities Tokens:** These tokens represent financial instruments and investment products traditionally used in capital markets. Reference assets in this category include money market funds, public equity, sovereign bonds, corporate bonds, municipal bonds, private equity, and private debt. These assets are often characterised by liquidity constraints, administrative complexities, and market access limitations, making them suitable candidates for tokenisation.

(c) **Investment Tokens:** These tokens provide investors with financial interests in underlying reference assets without conferring direct ownership.

(d) **Ownership Tokens:** These tokens offer fractional ownership rights or utilisation rights[41] in the underlying reference assets. The reference assets include real estate, securities, commodities like gold or crude oil, and intellectual property rights. By enabling fractionalisation, tokenisation provides new pathways for liquidity creation, access to high-value assets, and improved transparency in asset ownership structures.

Figure 4 sets out the classification of reference assets associated with each of the above four token types. Additionally, Figure 5 provides an illustration explaining the proposed taxonomy.

This paper focuses exclusively on asset tokens (i.e., securities tokens, investment tokens, and ownership tokens), excluding payment tokens from its scope of analysis. Financial regulators in India have previously expressed strong reservations against the proliferation of cryptocurrencies (stablecoins, utility tokens, and other privately issued money equivalents come under this bracket)[42], when India was considering regulating them[43]. Their concerns are rooted in a legitimate issue – these payment tokens could undermine established and regulated control arrangements put in place by monetary authorities, posing a threat to India's macroeconomic and financial stability. In sharp contrast, the financial regulators have taken a positive stance towards other applications of blockchain technology, including asset tokenisation.[44] Given the differing regulatory stance and the monetary policy

40 WEF (n 28) 7.

41 Here, utilisation rights mean the rights to use, enjoy, demarcate, and even dispose of the asset.

42 RBI has always played the role of a proactive regulator. In its role as India's central bank, it is driven by its "duty to safeguard people's trust in our money". Cryptocurrencies are, by virtue of their inherent design, "geared to bypass the established and regulated intermediation and control arrangements that play a crucial role of ensuring integrity and stability of monetary and financial ecosystem". The RBI has consistently flagged the risks linked to the proliferation of cryptocurrencies. These include money laundering and financing of terrorism, undermining the monetary policy transmission, exposure of the public to an abnormal level of volatility and circumvention of foreign exchange measures. See the Reserve Bank of India, Concept Note on Central Bank Digital Currency (RBI FinTech Dept., October 2022); Reuters, 'Exclusive: India resists full crypto framework, fears systemic risks, document shows' (10 September 2025); MAS360 (Moneylife), 'Cryptocurrencies have no underlying value, not even a tulip: RBI Governor' (12 February 2025); V Mishra & V Srivastava (n 3).

43 During its G20 presidency in 2023, India had called for a global framework to regulate such assets. SEBI recommended that different regulators should oversee activities linked to cryptocurrencies that fall under their domain, stating that security-like cryptocurrencies could be covered under capital market rules. See Reuters, 'Exclusive: India's SEBI open to oversight of crypto trade, in contrast to Reserve Bank' (16 May 2024).

44 An RBI official (personal view) expressed that the RBI is looking to tokenise government bonds and other assets as a technical trial under the wholesale central bank digital currency ("**CBDC**") pilot project. Another RBI official (personal view) praised "tokenised deposits" for 24×7 settlement and atomic smart-contract settlement, highlighting efficiency and programmability benefits. A SEBI official (personal view) stated that without markets offering tokenisation over the medium term, investors would shift to unregulated alternatives. SEBI has also formally advocated to allow fractional shares (a

implications associated with payment tokens vis-à-vis other asset tokens, payment tokens have been excluded from the scope of this paper and require a separate analysis. They fall squarely within the regulatory domain of the RBI.

Figure 4 Analysing the reference assets associated with each of the four classifications of tokens.

Classification of Tokens	Reference Asset	Digitally Native or Real World
Payment Tokens *(The reference asset is primarily used for transaction settlement and payment purposes.)*[45]	Commercial bank money (deposits), currency, CBDC	Real World
	Stablecoins and other privately issued money equivalents	Digitally Native
	Utility tokens, cryptocurrencies and other equivalent tokens[46]	Digitally Native
Securities Tokens *(The reference asset is financial instruments used for investment, rather than payment.)*	Money market funds	Real World
	Public equity	Real World
	Sovereign bonds/ treasury bills	Real World
	Corporate listed bonds	Real World
	Municipal bonds	Real World
	Private equity	Real World
	Private debt	Real World
	REITs and InvITs units	Real World
	Receivables	Real World
Investment Tokens *(Tokens provide a financial interest, not being ownership, linked to the reference asset.) (Excludes securities tokens from its scope.)*	Real estate – rental and usufruct share	Real World
	Commodities – e.g. gold usufructs from staking	Can be either
Ownership Tokens *(Tokens provide a direct ownership in the reference asset.) (Excludes payment tokens, securities tokens, and investment tokens from its scope.)*	Real estate (land, immovable property)	Real World
	Commodities – gold, art, collectables, crude oil, coffee, carbon credits, etc.	Can be either
	Securities	Real World
	Intellectual Property Rights ("**IPR**"), brand recognition, goodwill	Real World

type of asset tokenisation) in the equity markets. The IFSCA has established a regulatory sandbox to allow experimentation with blockchain-based financial products, including tokenized assets, indicating a more progressive approach towards blockchain technology in the financial sector. See M D Patra, 'Navigating emerging challenges for deposit insurers and fortifying crisis preparedness' (speech, BIS, 14 August 2024); Business Standard, 'RBI plans tokenisation of assets, bonds under wholesale CBDC pilot' (10 February 2024); Business Standard, 'SEBI plans to implement optional same-day settlement from March 28' (11 March 2024); Moneycontrol, 'Have asked government to allow fractional ownership of shares in India, says SEBI chief' (28 June 2024); V Mishra & V Srivastava (n 3).

45 Payment tokens fall squarely within the regulatory domain of the RBI and are excluded from the scope of this paper.

46 Including wrapped tokens. A wrapped token is a representation of one cryptocurrency in a manner that makes it compatible with another DLT while keeping its value pegged to the original cryptocurrency. It serves as a bridge between two DLTs. Simply put, a wrapped token is like a stablecoin if it were pegged to any cryptocurrency instead of a fiat currency. For a detailed explanation, see IOSCO, 'Decentralised Finance Report' (December 2022).

Figure 5 Illustrative example - explaining the classification of tokens by end-use

For instance, consider a demarcated plot of land, upon which a leased commercial shop yields a fixed monthly rental income. The land is owned by a special purpose vehicle, 'X'. X, the issuer of tokens, may elect to isolate and tokenise different attributes of this reference asset:

- The financial rights of the reference asset could be isolated and represented through rental tokens, each entitling the holder to a proportionate portion of the rental income. This would be an **investment token**.
- The ownership interest in the underlying land (absent any right to demarcate, evict, or interfere with the leasehold) may be tokenised, each representing a fractional, undivided interest in the land. This would be an **ownership token**.
- The utilisation rights may be tokenised, allowing them to own a share in the land and use, enjoy, demarcate, and even dispose of their interest. This would also be an **ownership token**.
- The equity shareholding of the company X could be tokenised. This would be a **securities token**.
- A token could be issued representing a fractional ownership (one-tenth of an equity share) of the equity shares of the company X. This would also be an **ownership token**, with the equity shareholding of the company being the reference asset.

In this manner, tokenisation allows for rights in a reference asset to be bundled or unbundled, facilitating more efficient value allocation and a wider range of investment and utility possibilities.

Valuation of the Reference Asset

Tokenisation with real-world reference assets typically involves a third-party agent to assess the value of the reference asset.[47] Valuation of the underlying reference asset or claim provides the foundation for determining the initial and ongoing prices of tokens. A reliable valuation process enhances legitimacy[48], ensuring that tokens accurately represent the underlying reference asset's worth. This transparency encourages investor participation and limits the speculative volatility as to the value of the tokens.

The design of tokenisation platforms and the perception of their value can create gaps between the actual value of the reference asset and the token's market price. Token prices do not reflect just the price of its reference asset; other external factors may also be considered[49], including:

(a) the legal recognition and enforceability of the token (strong legal recognition pushes the price of tokens upwards);
(b) the redemption rights associated with the tokens (easy redemption of tokens into reference assets invites arbitrage, which reduces the variance between the valuations of the tokens and the reference assets);
(c) concerns regarding the reliability of the token issuer (pushes the price of tokens downwards compared to the valuation of the reference assets);
(a) the mismatch in trading mechanisms or the operating hours of the tokenised market and reference asset market (better operational hours of the tokenised markets imply more liquidity, pushing the token price upwards); and
(b) the token's higher perceived liquidity and valuation due to fractionalisation (pushes the token price upwards).

To address these challenges, a combination of valuation mechanisms is employed to assess the value of reference assets in tokenisation. These include:

(a) **Professional Valuation Methods**: Utilisation of established appraisal techniques, such as discounted cash flow analysis, comparable market analysis, or asset-based approaches, conducted by licensed professionals.
(b) **Market Analysis**: Continuous monitoring of market prices, trading volumes, and liquidity conditions for both the reference asset and its tokenised representation.
(c) **Independent Appraisals**: Engagement of third-party experts to provide unbiased assessments of asset value, particularly for illiquid or unique assets.
(d) **Algorithmic Price Feeds**: Use of automated algorithms that aggregate data from multiple sources, including oracles, to calculate and adjust the value of the underlying asset in real time.
(e) **Regulatory and Audit Oversight**: Implementation of periodic audits and compliance checks to ensure that valuation practices adhere to relevant legal and regulatory standards.

These mechanisms, when applied collectively, help to mitigate the risks associated with technological and design-related valuation challenges, thereby supporting the integrity and credibility of the tokenisation process.

47 F Carapella et al (n 34) 3.
48 FSB (n 24) 16.
49 FSB (n 24) 17.

Storage and Custody of the Reference Asset

For ownership tokens, the value of each token is intrinsically equal to the underlying ownership in the reference asset it represents. For such ownership tokens, any changes in the value of the real-world reference asset would have a corresponding impact on the price of the ownership tokens. Given that the real-world reference asset will continue to exist outside the programmable platform, despite being tokenised, it becomes necessary to place it in custody, typically with a third-party trusted authority, to ensure that the ownership tokens continue to be constantly backed by the underlying reference asset.[50] If the issuer of the ownership token / the owner of the real-world reference asset continues to hold such reference asset, it creates a risk of duplicative token issuances.

The role of this third-party trusted authority, termed a 'custodian', includes:

(a) Undertaking initial due diligence checks. This involves verification of the characteristics of the reference asset (including ownership/ title verifications) - to ensure that the characteristics of the reference asset correspond to the disclosures about the token made at the time of issuance and to ensure that the disclosures are accurate, complete and not misleading.
(b) Safekeeping and maintaining the custody of the reference assets backing the tokens.
(c) Certifying the backing of the tokens by a unique reference asset. This ensures that the digital representation of a right/claim in respect of a single reference asset is unique, i.e., there are no duplicative token issuances for the same right/claim over the same reference asset.[51]

The role of a custodian is critical to safeguard the interests of the holders of the tokens. The IFSCA has previously emphasised the need to create an appropriate framework for safe custody, upkeep and maintenance of the real-world reference asset.[52] As per OECD, the role of custodians is "*key in the structure of tokenised markets*", and emphasises that a custodian must be a trusted and credible central party.[53] OECD also expands on the role played by the custodians, stating that they must also "*guarantee the backing of tokens issued with 'real world' off chain assets as the reference assets*"[54], instead of a simple certification. The Government of Telangana's Technical Guidance Note also reiterates that custodians must ensure all tokens are backed by underlying reference assets and suggests that custodians be government bodies or entities licensed by government bodies.[55]

Typically, custodians of reference assets are regulated entities that comply with minimum capitalisation requirements and prescribed governance and operation norms.[56]

Custody of Tokens

Custody of issued tokens is another aspect of tokenisation that may involve a third-party agent. Custodians of tokens are responsible for safekeeping their clients' tokens, restricting any unauthorised entity from accessing/controlling the tokens, processing and settling associated transactions, and servicing the tokens across multiple markets. Custodians assist in creating uniformity amongst multiple markets with unique rules, regulations and standards; help investors manage risks (especially cyber risks), liabilities and support their trading activities.

Tokenisation enables flexible custodial arrangements, set out in Figure 6 below. Tokenisation thus enables user-centricity by offering choices between direct control of tokens or varying levels of custodian involvement, allowing users to select their preferred option.[57]

50 OECD (n 20) 11.
51 OECD (n 20) 33.
52 IFSC Authority (n 10) 12.
53 OECD (n 17) 11; OECD, Tokenisation of Assets and Distributed Ledger Technologies in Financial Markets (OECD Bus. & Finance Policy Paper 75, Jan 2025) 17. The OECD 2020 used the terminology "trusted and credible central authority", which could potentially imply only a singular central authority to undertake the role of a 'custodian'. The OECD 2025 paper changed this terminology and instead adopted the terminology "a trusted and credible central party" and "custodians", making the existence of multiple custodians amply clear.
54 OECD (n 20) 11.
55 Government of Telangana, Technical Guidance Note on Asset Tokenization (ITE&C Dept., 2023) 9.
56 OECD (n 20) 18.
57 WEF (n 28) 14.

Figure 6 Flexible custody arrangement options.[58]

Arrangement	Full Custody	Collaborative or Shared Custody	Hosted or Embedded Custody	User-Held or Non-Custodial
Description	A third-party custodian holds and manages private keys on behalf of users or institutions, making this ideal for institutional clients requiring regulatory compliance, security and operational efficiency.	Requires multiple parties to approve transactions by distributing control using multiparty computation, balancing security and decentralisation while reducing reliance on a single entity.	Integrates custody solutions into applications via APIs or SDKs, offering businesses flexible digital asset management while leveraging multiparty confirmations for enhanced security and granting end users some control.	Users retain full control over their private keys and digital assets without intermediaries, requiring secure key management while ensuring full sovereignty and responsibility.
Private keys	Third-party custodian retains full control	Designated users have shared control	The end user has primary control, while the wallet service provider acts as a backup	End user retains full control
Recoverability	Yes	Yes	Yes	No
Advantages	Enterprise-level security Reduced operational risk	Reduced risk of key loss No single entity controls keys	Fast, efficient asset transfers Recovery of keys is possible	Increased user control Ideal for privacy
Trade-off	Centralisation risk: single entity controls assets	Operational complexity: coordinating multiple custodians/signers	Platform risk: possible platform failures	No recovery: no ability to recover lost keys
Applicability	Institutions that are transacting or storing a large value of assets	Institutions demanding a degree of distributed security	Retail investors prioritising ease of access while remaining protected	DeFi users and privacy-focused investors who value full control
Risk	Low	Moderate	Moderate	High

Providing custody services for tokens will typically be a regulated activity. The Financial Action Task Force ("**FATF**"), in its guidance on virtual assets and virtual asset service providers ("**FATF Guidance**"), classifies entities providing custody or control of 'virtual assets'[59] or enabling access to virtual assets as 'virtual asset service providers' ("**VASPs**"). VASPs are required to implement customer due diligence measures / know-your-customer ("**KYC**) checks, monitor and report suspicious transactions, and adhere to the 'travel rule' which mandates the sharing of sender and beneficiary information between VASPs when undertaking any transfers of virtual assets.[60] The FATF Guidance serves as a framework for national authorities, assisting them in understanding and developing effective, risk-based regulatory frameworks. The implementation of the FATF Guidance by member countries is also periodically monitored by the FATF.

Mechanism to Facilitate Exit or Redemption of the Tokens and/or the Reference Asset

The last design consideration for asset tokenisation is the mechanism through which holders may redeem or exit their holdings in the tokens. This mechanism determines how claims, rights, or ownership interests associated with the reference asset are realised, whether through (a) redemption into the reference asset itself, (b) delivery of equivalent value, or (c) through secondary market trading.[61] Unlike conventional assets, where redemption may involve intermediaries and is contractually governed, for tokens issued on a programmable platform, the redemption mechanics can be automated and embedded on the programmable platform itself. IFSCA has noted that granting a holder of tokens the right to exit or redeem their investment from the tokens

58 Borrowed from WEF (n 28) 48–49. The more common and simplified classification for custody arrangements is dividing custody arrangements into two types: the 'custodian model' and the 'user-held model'. The WEF further classifies the 'custodian model' into (a) 'full custody'; (b) 'collaborative or shared custody'; and (c) 'hosted or embedded custody', giving a better picture of the flexible custody arrangement options available to the token owner.

59 'Virtual asset' includes 'tokens'.

60 See FATF, Updated Guidance for a Risk-Based Approach to Virtual Assets and Virtual Asset Service Providers (2021).

61 F Carapella et al (n 34) 1–2; WEF (n 28) 7.

ensures market stability and investor protection.[62] Additionally, the ability to redeem tokens into reference assets or to exit with equivalent value invites arbitrage, reducing the variance between the valuations of the tokens and the reference assets.

The mechanism to facilitate exit or redemption of the tokens/reference asset will also be different for each type of token:

(a) For securities tokens, a redemption mechanism should mirror the redemption mechanism for real world securities to eliminate arbitrage.
(b) For investment tokens, which provide financial interests without direct ownership, the exit mechanisms would be primarily about ensuring that cash flows or benefits tied to the reference asset are reliably channelled back to token holders. Redemption logic on a programmable platform may therefore include automated distribution of income or buyback mechanisms, subject to legal enforceability.
(c) For ownership tokens, redemption may entail transfer of a fractional ownership interest or its liquidation value and also through secondary market exits, while safeguarding the enforceability of underlying property rights.

Restrictions on the sale of tokens, lack of demand or liquidity for the tokens, and lack of divisibility of the underlying asset could potentially restrict exit/redemption.[63] A mass redemption / fire sale of tokens due to stress events that occur outside of the operating hours for the reference asset and traditional banking channels (i.e., during which providing an exit/ redemption for the token is difficult) could also pose financial risks, which could even affect the solvency of any entity holding a sizeable amount of such tokens.[64]

Parallels with the Existing Financial System

"Some aspects of tokenisation resemble other existing digital representations of assets and activities in the financial system." For example, the process of tokenisation is similar to securitisation. Both convert underlying assets into tradable claims to improve liquidity and broaden investor access. The key distinction lies in the purpose. In securitisation, asset pools (such as mortgages or receivables) are bundled and structured into securities, intending to redistribute risk. In contrast, tokenisation is primarily about ownership representation and settlement efficiency. It does not repackage risk but promises transparency, programmability, and greater market access.[65]

Even the third-party intermediaries involved in the tokenisation process have parallels in the traditional financial system. The functions of 'a custodian of reference assets for the benefit of the token holders' resemble the functions of 'a debenture trustee ("**DT**") holding security for the benefit of the debenture holders'. A DT is required to undertake due diligence at the time of issuance, including verification of title, encumbrances, and required consents for security creation.[66] The DT must also ensure that the issuer maintains at least 1x security cover at all times. Further, the DT also has a responsibility to monitor the security creation and covenants, validate charge registration and enforce remedies in case of breach.[67] In this manner, the DT's role for secured debenture issuances parallels that of a regulated custodian in tokenisation frameworks, which would undertake initial due diligence, safeguard the reference assets and certify that the tokens are backed by reference assets. Similarly, the role of a custodian of tokens parallels the role of a depository to a certain extent.

Interestingly, tokenisation is changing the roles of intermediaries, but not entirely eliminating or displacing them.[68] Certain functions, such as transfer verification or settlement, may be compressed within the programmable platform, but others, particularly those tied to legal recognition of rights and security enforcement, may broaden the scope of intermediaries.[69]

62 IFSC Authority (n 10) 13.
63 IFSC Authority (n 10) 13.
64 F Carapella et al (n 31).
65 FSB (n 24) 5.
66 SEBI (Debenture Trustees) Regulations 1993, regs 15(1)(i), (6); SEBI, Master Circular for Debenture Trustees (13 August 2025) Ch II, paras 2.2.2–2.2.4.
67 SEBI, Master Circular for Debenture Trustees (13 August 2025) Ch III, paras 5.2, 5.5–5.7 and Ch X.
68 A Carstens and N Nilekani, Finternet: The financial system for the future (BIS Working Papers No 1178, 2024).
69 OECD (2020) Tokenisation of Assets and Potential Implications for Financial Markets; Government of Telangana (2023) Technical Guidance Note on Asset Tokenization.

Chapter 2: Legal and Regulatory Considerations

This chapter serves as a primer for the interaction of tokenised assets with legal concepts of property, title, ownership and transfer, discusses the legal attributes of tokens generally and focuses on their interaction with specific Indian legislations.

Summarising: Tokenisation, DLT and smart contracts

Tokenisation refers to the process of digitally representing value, rights, or claims on a digital or programmable platform, whether in relation to a pre-existing reference asset or otherwise, to enable secure and verifiable ownership and to facilitate legal and operational transferability. Tokenisation is a process that can be applied to all kinds of property, both real-world and digitally native property, and irrespective of whether the real-world property is tangible or intangible.

The advent of DLT and smart contracts has enabled efficient tokenisation. DLT is a distributed digital network that maintains a database of records (a 'distributed ledger') – wherein every network participant (each a 'node') can add, verify, and store information in the ledger. This ledger is disseminated, synchronised and maintained identically across nodes, eliminating the need for intermediaries.[1] A programmable platform is a superset of DLT, whereas blockchain is a subset of DLT. Smart contracts are self-executing programs embedded and processed in any programmable platform.[2] The terms of the agreement are encoded in its programming upfront and are directly executed once certain pre-determined conditions are fulfilled.[3] Smart contracts bring programmability to any digital platform.

Legal Attributes of Tokens

Tokens are property. Tokens can be made subject to the control of[4] and offer proprietary rights to its owner. Here, 'proprietary rights' is used in a broad sense. It includes the proprietary ownership interests in the tokens (a person can have rights or interests *in tokens*). It also consists of the consequent proprietary effects of these interests, which can be exercised against third parties or persons who are not necessarily contractual parties (*jus ad rem*, a person can assert their rights in their tokens against a third person). This is particularly relevant in insolvency, land and intellectual property law applications of tokens.[5]

Tokens are Electronic Records

Tokens contain information stored in an electronic medium that can be retrieved.[6] Tokens will also constitute an electronic record under the (Indian) Information Technology Act, 2000 ("**IT Act 2000**")[7].

Tokens are linked to a Reference Asset

The value of each token (other than that of a digitally native token) is intrinsically tied to a reference asset. The rights that a token holder enjoys in relation to this reference asset are defined by the token's terms, typically embedded in its underlying smart contracts.

1 Monetary Authority of Singapore, 'Blockchain/Distributed Ledger Technology (DLT)', World Bank, Distributed Ledger Technology & Secured Transactions: Legal, Regulatory and Technological Perspectives-Guidance Notes Series Note 3: Distributed Ledger Technology and Secured Transactions Frameworks: A Primer (2020).

2 World Bank (n 1).

3 See Stefan Jovanović, UNIDROIT Principles of International Commercial Contracts and New Frontiers of Blockchain, Smart Contracts and Digital Assets (UNIDROIT Study No 5/2024) accessed 13 April 2025.

4 Tokens are a type of digital asset. We, therefore, borrow the definition of 'control' from UNIDROIT Principles on Digital Assets and Private Law with necessary changes. Here, 'control' refers to tokens where a person can establish that it has (i) the exclusive ability to prevent others from obtaining substantially all of the benefit (i.e., the underlying value and the rights) of the tokens, (ii) the ability to obtain substantially all the benefit from the tokens, and (iii) the exclusive ability to change the control of the token or transfer the token to another person. This definition of control and these three rights – exclusion, title and transferability – apply equally to traditional (real world) properties, like 'your' land or even simpler assets, such as 'your' chocolate. See UNIDROIT, Principles on Digital Assets and Private Law (2023) Principle 6 accessed 15 April 2025.

5 For an analysis of the applicable laws in India governing tokens, given their nature as movable property, please refer to the section titled 'Interactions between Tokens and Indian Legislations' below.

6 UNIDROIT, Principles on Digital Assets and Private Law (2023) Principle 2(1) accessed 15 April 2025.

7 Section 2(1)(t) of the IT Act 2000 defines 'electronic record' as "data, record or data generated, image or sound stored, received or sent in an electronic form…".

Tokens can be Transferred

Transfer of a token involves a change in the proprietary right in the token from one person to another.[8] A 'transfer' includes a transaction whereby the proprietary rights acquired by the transferee in the tokens are not identical to/are distinct from the nature of proprietary interests held and alienated by the transferor. Tokens can also be 'transferred' to create security rights in favour of a secured creditor.

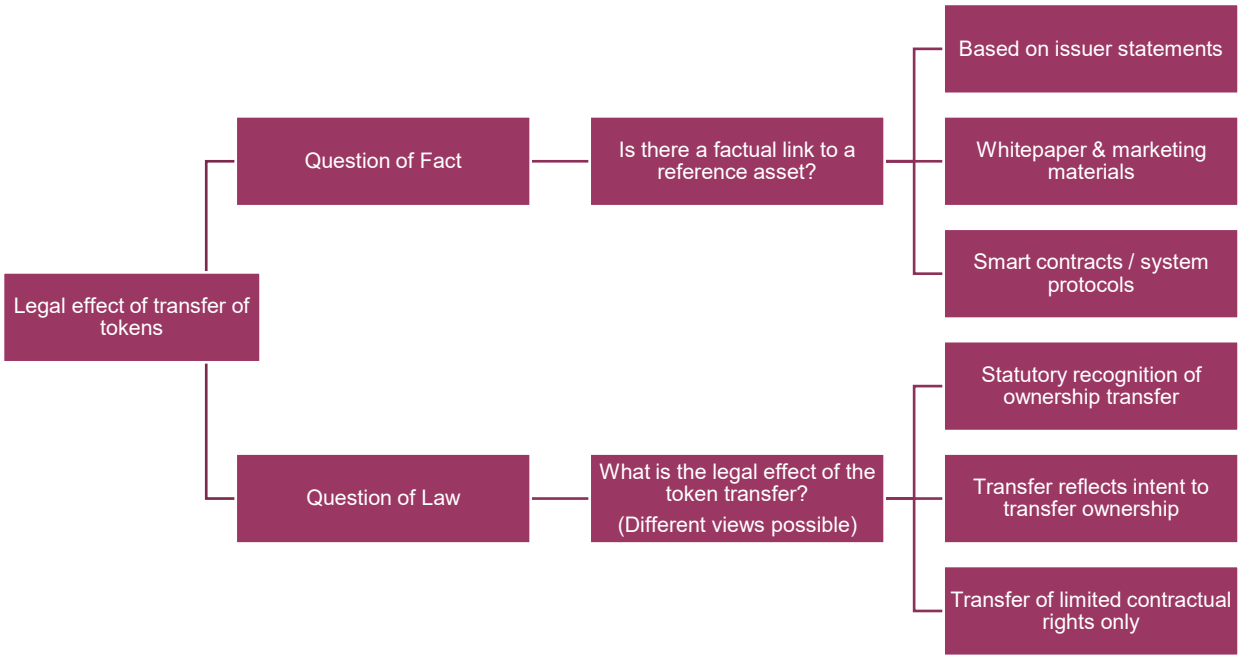
The typical rationale behind tokenisation is to enable transactions in the reference asset through a more efficient and real-time transfer of tokens. Further, tokenisation permits high-value reference assets with limited liquidity to be fragmented into affordable tokens, enabling accessibility and liquidity.

The legal effects of a token transfer on the underlying reference asset is both, a 'question of fact' and a 'question of law'. This issue remains unresolved in most jurisdictions. The link between the token and the reference asset is a 'question of fact'.[9] This link can be evidenced through the issuer's statements, the language of the token's whitepaper, associated marketing materials, the relevant smart contract architecture, and any applicable system-level protocols.

The effect of an established factual link on ownership and proprietary rights in the reference asset is a 'question of law'.[10] Unlike transactions involving traditional (real-world) properties, transactions involving tokens do not automatically have legal effect. For traditional properties, transactions are, as a norm, given legal effect, subject to the satisfaction of an additional step of making an entry in the registry system for some specific traditional properties[11]. In contrast, legal systems may treat the effect of token transactions on the underlying asset in one of the following ways:

(a) The applicable law may **expressly recognise** a link between the effect of the transfer of tokens on the underlying reference asset. A transfer of a token statutorily constitutes a transfer of the reference asset.
(b) The token transfer constitutes an **outward expression of a person's intention** to deal with the proprietary ownership interest of the underlying reference asset. Thus, despite no express laws to that effect, the ownership of the digital asset and the reference asset are understood to be transferred nearly simultaneously.
(c) The token transfer constitutes only a **contractual transfer of limited rights**, without transferring the ownership of the reference asset itself.

Figure 7 Determining the legal effect of a transfer of token



8 UNIDROIT, Principles on Digital Assets and Private Law (2023) Principle 2(5) accessed 15 April 2025.
9 See section titled 'Tokens are linked to a Reference Asset' above in this Chapter 2.
10 UNIDROIT, Principles on Digital Assets and Private Law (2023) paras 4.4–4.10 accessed 15 April 2025.
11 For e.g., land and intellectual property.

The (Indian) Transfer of Property Act, 1882 ("**TPA 1882**") governs the valid transfers of proprietary rights to other persons or the creation of security rights over property.

There can be a 'change of control' of the tokens, independent of any transfer of tokens.[12]

Custodial wallets will, e.g., only acquire control over the cryptocurrency tokens but will typically not acquire ownership.[13]

Tokens can be used as Security

Tokens can be provided as security to a creditor to secure or guarantee the performance of a present, future or contingent obligation of the token holder or any third party. The process of creating security over the tokens is also affected by the rules on security creation applicable to the reference asset, such as registration and charge filings. A security interest in favour of a creditor can be made effective against third parties by obtaining control over the tokens or having a custodian maintain the tokens on its behalf.[14]

Control is essential for determining priority in digital asset security rights. If one creditor registers a security interest without control while another creditor gains control later, the latter has priority. This differs from the usual rule that prioritises security rights based on when they were made effective against third parties.[15]

Multiple creditors can obtain control over digital assets through a custodian. Typically, they would clarify their priorities in a subordination or inter-creditor agreement. Without such an agreement, priority will follow the first-in-time principle, favouring the creditor who first secures acknowledgement from the custodian.[16]

Legal Uncertainties around Tokenisation

The legal framework for tokenisation is presently evolving globally. Despite the tokenisation industry having grown significantly, there is a notable absence of regulatory clarity. In the context of India, the consultation paper released by the International Financial Services Centres Authority ("**IFSCA**") also posed critical questions related to ownership recognition, the rights conferred by tokens, the enforceability of claims linked to tokens, and the legal treatment of smart contracts and DLT.[17]

At each stage of the tokenisation process (from asset selection to secondary trading), legal uncertainties exist, which highlights the need for regulatory responses that are India-specific and rooted in fundamental principles. Figure 8 sets out an indicative list of legal uncertainties at various stages of the tokenisation process.

12 The flip side is also true. While 'change in control' is typically part and parcel of any transfer of any property (including tokens), it is not mandatorily so. By operation of law, there can be a transfer in the beneficial proprietary rights in a property, while control over the property stays with the transferor.

13 Cryptocurrency tokens are a subclass of digitally native tokenised assets. Cryptocurrency tokens are often held in and controlled by custodial wallets, which hold the private key on behalf of each individual owner of the cryptocurrency tokens.

14 UNIDROIT, Principles on Digital Assets and Private Law (2023) Principle 15 accessed 15 April 2025.

15 UNIDROIT, Principles on Digital Assets and Private Law (2023) Principle 16 and para 16.1 accessed 15 April 2025.

16 UNIDROIT, Principles on Digital Assets and Private Law (2023) para 16.4 accessed 15 April 2025.

17 Control includes the right to exclude others from enjoying the benefits of the property.

The ‘Tokenisation Lifecycle’

Reference asset selection, asset valuation and due diligence

- What types of reference assets are legally suitable for tokenisation?
- Can reference assets be undivided or floating, or must they be demarcated?
- What level of title verification or legal due diligence is required?
- Who is responsible for verifying asset authenticity and valuation?
- Are there legal liability standards for inaccurate or misleading due diligence?
- Must the asset be free from encumbrances pre-

Technical and smart contract development

- Are smart contracts enforceable under existing contract law?
- What legal rights do token holders have under the token design?
- Is there regulatory or third-party validation required for token architecture?
- What regulatory standards apply to code validation and protocol design?

Legal structuring, Regulatory compliances

- Are there custody, possession, or maintenance norms to preserve asset value?
- What AML/CFT obligations apply to issuers and token holders?
- Are existing securities or commodity laws triggered by the token structure?
- How should cross-border token transfers be treated under Indian laws?

Token issuance

- Does issuance confer legal ownership or just economic rights?
- Are token holders recognised as beneficiaries or co-owners?
- What legal standards apply to issuers (due diligence, financial credibility)?
- What disclosures are required to prospective token holders?
- How should issuer governance structures (sponsor entity and issuing entities) be regulated?
- Should investor rights (voting, economic interest) be built into tokens?

Ongoing management and compliances

- Who holds ongoing fiduciary responsibilities (issuer, custodian)?
- What legal framework governs post-issuance governance and dispute resolution?
- How are investor rights (e.g., dividends, redemptions) enforced?

Secondary trading

- Should trading be permitted OTC or only via regulated marketplaces?
- Is legal title to the underlying asset updated upon token transfer?
- What rules govern price discovery and liquidity in token markets?
- What investor protections are required (misrepresentation, fraud, etc.)?

Exit / Redemption of the tokens

- How is investor redemption or exit enforced (cash vs asset-based)?
- What happens upon insolvency of the issuer or custodian?

Figure 8 Legal uncertainties at each stage of the tokenisation process

This paper seeks to address some of these questions and attempts to: (a) propose a token taxonomy; and (b) outline a regulatory framework for asset tokenisation in India.

Intermediaries

A tokenisation lifecycle typically involves the following five processes: (a) issuance of tokens, (b) custody of tokens, (c) transfers of or trade in tokens, (d) clearing and settlement of trades in tokens, and finally at the end of the lifecycle (e) exit/redemption of the tokens.[87] The modular approach to asset tokenisation proposes a four-layer model to visualise the different components of the asset tokenisation network.[88] Each of the four layers is governed by and involves interactions between different participants, with the end goal of facilitating at least one of the above five processes forming part of the tokenisation lifecycle.

The Access Layer[89]. The access layer is the outer layer of the ecosystem. It is through the access layer that a user (an issuer, holder, borrower, investor, etc. of tokens) interacts with the entire ecosystem and 'accesses' the services. These interactions may be direct or indirect (through custodians, wallet services, etc). The participants in the access layer of the tokenisation ecosystem include wallet service providers, other technology service providers (developing apps/platforms for user interface), the users (including traders and liquidity service providers), custodians of the tokens, and compliance agents.

The Service Layer. The service layer has value-adding services provided by using tokens, typically enabled by smart contracts. These services include payments, lending, borrowing, collateralisation, exchange, etc. The participants in the services layer of the tokenisation ecosystem include the liquidity provider, the verifiable credentials developer, custodians of the tokens, KYC service providers, compliance agents, e-signing solutions, issuance service providers, exchanges and trading platforms, marketplaces, distributors, portfolio managers, arrangers, payment processors and valuers.

The Asset Layer. The asset layer records ownership of the tokens and/or the underlying reference asset. The participants in the asset layer of the tokenisation ecosystem include issuers and asset owners, custodians of the reference asset, trust anchors, and clearing houses.

The Platform Layer. The core layer of the tokenisation ecosystem. The platform layer consists of the underlying blockchain / DLT architecture, which enables recording asset ownership and executing the service transactions. The participants in the platform layer of the tokenisation ecosystem include the protocol developer and 'oracles'[90].

Anchoring Tokens within Existing Indian Laws

Despite the absence of a dedicated legal framework governing asset tokenisation in India, the 'tokens' interact with several legislations (including contract, property rights, anti-money laundering ("**AML**"), taxation, consumer protection and securities laws). This section explores such interactions between the tokens, a new technological product, and the extant applicable laws in India.

IT Act, 2000

Tokens and transaction records maintained through DLT technology each constitute an electronic record under the IT Act 2000, given that they are information in electronic form and that such records will remain accessible for future reference.[91] In India, electronic records are a legally recognised substitute for any written record.[92] Additionally, the IT Act 2000 also provides a framework to safeguard both (a) the computer network / DLT underlying the tokens built by the issuer of tokens, from any damages[93], and (b) sensitive personal data of the token holders.[94] Even further, it clarifies that contracts can be validly formed by communication of proposals and acceptances in electronic mode.[95] This clarification enhances the validity of e-contracts and, arguably, the validity of smart contracts (which are integral to tokenisation).

87 International Financial Services Centres Authority (IFSCA), Consultation Paper on Regulatory Approach Towards Tokenization of Real-World Assets (26 February 2025).

88 Monetary Authority of Singapore, 'Project Guardian' (4 November 2024).

89 Ibid.

90 Financial Stability Board, The Financial Stability Implications of Tokenisation (22 October 2024) 1.

91 Section 2(1)(t) of the IT Act 2000 defines 'electronic record' as "data, record or data generated, image or sound stored, received or sent in an electronic form…".

92 Information Technology Act, 2000 (Act 21 of 2000), Section 4.

93 The Information Technology Act, 2000 (Act 21 of 2000), Section 43.

94 The Information Technology Act, 2000 (Act 21 of 2000), Section 43A read with the (Indian) Information Technology (Reasonable security practices and procedures and sensitive personal data or information) Rules, 2011.

95 Information Technology Act, 2000 (Act 21 of 2000), Section 10A.

Indian Contract Act, 1872 ("Contract Act 1872") and TPA 1882

The Contract Act 1872 and the TPA 1882 together form the basic framework for commercial contracting and for *inter vivos* transfers of proprietary interests in India. Although neither legislation explicitly addresses tokenisation, both can be interpreted as a set of fundamental principles that apply across technologies. For example, Indian courts have previously applied the principles under the Contract Act 1872 to recognise agreements made over email or instant messaging applications as valid contracts[96].

(a) **Validity of smart contracts in India** – A smart contract is a self-executing program, which executes the terms of an agreement as soon as the predefined conditions are satisfied.[97] A valid contract requires *inter alia* a proposal, an absolute and unqualified acceptance and lawful consideration – together evidencing a *consensus ad idem* (a meeting of minds).[98] Indian courts could potentially view smart contracts as akin to contingent contracts[99] holding them valid, provided the conditions for a valid contract under the Contract Act 1872 are fulfilled. The issuer publishing the smart contract could be considered as an offer, and the token holders' undertaking of the actions to affect the purchase of the tokens with an understanding of its terms could constitute an acceptance; with the offer and acceptance together indicating a meeting of minds.[100]

Fraud and misrepresentation in the tokenisation process – An agreement is a contract if it is made by the free consent of parties competent to contract, for a lawful consideration and with a lawful object, and is not hereby expressly declared to be void.[101] Here, 'free consent' means consent which is not caused by inter alia fraud or misrepresentation.[102] Any fraudulent actions on the part of the issuer and/or transferor of the tokens, or any misrepresentative statements by the issuer, the transferor and/or the platform (for example, a false assured returns guarantee, or concealment of issues in the title search and due diligence) would result in the issuance and/or transfer becoming voidable at the option of the holder of the token and/or the transferee, provided that such token holder and/or transferee did not have the means for discovering the truth with an ordinary diligence.[103]

(b) **Transfer of proprietary right in a token to another person** – Tokens are property. Here, 'property' must be understood with the same connotation as under the TPA 1882 – i.e., in its widest and most generic legal sense,[104] including not only the thing which is the subject-matter of ownership, but also dominium or the right or ownership or of partial ownership and every possible interest which a party can have[105]. Tokens can be made subject to the control of their owner and offer proprietary rights to their owner.[106] TPA 1882 provides that all kinds of property may be transferred by a person competent to contract and has title to the property, or is authorised to transfer such property[107] - the basic rule of *nemo dat quod non habet*[108] applies. Unless expressly specified / necessarily implied otherwise, a transferor passes on the entirety of their rights to the transferee.[109] Tokens can also be transferred, although the legal effects of such a transfer of a token on the underlying reference asset are inherently unclear[110] and need to be defined. The rules around vesting of interest, when a contingent interest turns into a vested interest, conditional transfers, fulfilment of condition precedent, ulterior transfer conditional on happening or not happening of specified event, etc[111], can be equally applied to determine when the transfer of tokens concludes, and when the proprietary rights become vested with the transferee.

96 Trimex International FZE Ltd. Dubai v. Vedanta Aluminium Ltd., (2010) 3 SCC 1; Ambala Sarabhai Enterprise Limited v. KS Infraspace LLP Limited, (2020) SCC OnLine 1.

97 See section titled 'Summarising: Tokenisation, DLT and smart contracts' above in this Chapter 2 .

98 Contract Act 1872, Section 2 and Chapter I.

99 Section 31 of the Contract Act 1872 defines 'contingent contract' as a "contract to do or not to do something, if some event, collateral to such contract, does or does not happen".

100 For a critical analysis of the validity of smart contracts under the Contract Act 1872 see Singh R K, 'Are Smart Contracts Really Smart? Decrypting the Issues' (2024) 10(2) National Law School Business Law Review Art 1 https://repository.nls.ac.in/nlsblr/vol10/iss2/1 accessed 30 October 2025; Shilpa Singh Jaswant & Prajakta Kale, 'Smart Contracts and Blockchain: Legal Issues and Implications for Indian Contract Law' (2022) 36 International Review of Law, Computers & Technology 312; Aditya Jain, 'A Sceptic's Take on Asset Tokenisation: Disruption, Hype and Snake Oil' (May 2025) Vinod Kothari accessed 6 October 2025; Prakhar Tiwari, 'Analysis of Smart Contracts, DLT and Fintech Laws in India' (2022) 4(3) Indian Journal of Legal Research 1.

101 Contract Act 1872, Section 10.

102 Contract Act 1872, Section 13.

103 Contract Act 1872, Section 19; Niaz Ahmed Khan v Parshottam Chandra, AIR 1931 All 154; JM Apcar v LC Malchus, AIR 1939 Cal 473; Venkataratnam v Sivaramudu, AIR 1940 Mad 560, (1940) 1 MLJ 314; Niranjan v Tirilochan, AIR 1956 Ori 81.

104 Mata Din v Kazim Husain, (1891) ILR 13 All 432, p 473; Bansigopal v. V K Banerji, AIR 1949 All 433.

105 Jones v Skinner, (1835) 5 LJ Ch 87, p 90.

106 See section titled 'Tokens are Property' above in this Chapter 2.

107 TPA 1882, Sections 6 and 7.

108 Literally, 'one cannot give what one does not have'.

109 TPA 1882, Section 8. A similar principle is codified under the UNIDROIT, Principles on Digital Assets and Private Law (n 72) Principle 9.

110 See section titled 'Tokens can be transferred' above in this Chapter 2.

111 TPA 1882, Chapter II, Sections 9-34.

(c) **Rights on an 'innocent acquirer' of tokens** – Section 41 of the TPA 1882 protects the rights of an innocent acquirer of immovable property. Where a person, with the express or implied consent of the persons interested in immovable property, is the ostensible owner of such property and transfers the same for consideration, the transfer shall not be voidable on the ground that the transferor was not authorised to make it. A similar principle is codified under Principle 8 of the UNIDROIT Principles, an innocent acquirer who takes control of a digital asset acquires it free of any conflicting proprietary rights[112].

(d) **Tokens as an actionable claim over the reference assets** – Tokens may arguably be considered to constitute a claim recognised by the courts as affording grounds in the form of a beneficial interest in moveable property not in the possession of the claimant (an 'actionable claim')[113]. Transfers of actionable claims are governed by the TPA 1882.[114]

(e) **Creation of security rights over the tokens** – Broadly, a security interest can be in one of the following forms: (i) mortgages[115], (ii) pledge[116], (iii) hypothecation[117], (iv) guarantees (both personal and corporate)[118], and (v) other charge[119]. Tokens, being moveable properties, can be pledged, hypothecated, or otherwise charged in favour of a third party for safeguarding payment of debt or performance of obligations. If the pledgor makes a default in payment of debt or performance, the pledgee may sell the pledged assets on giving the pledgor a reasonable notice of the same without any prior court intervention. Similarly, a deed of hypothecation usually contains provisions entitling the creditor to sell the hypothecated assets without requiring court intervention. Indian courts have previously upheld a creditor's right to take possession of the hypothecated assets and sell such assets, provided the deed of hypothecation empowers the creditor to do so and the creditor provides reasonable notice to the borrower. Hypothecation and pledge are not *per se* enforceable against third parties, except where regulatory filings for such security interest are made (which act as a public notice of such charge)[120], in which case they become enforceable against third parties.

For tokens, there is an added layer of complexity depending upon the nature of the underlying reference asset. For example, when the underlying asset is comprised of land or intellectual property, it needs to be considered if the security interests established over the tokens 'look through' to the reference asset itself. If the security interest is considered to extend to the linked reference asset, the security interest may amount to a mortgage and/or necessitate further legal formalities (registration and/or regulatory filings for land and intellectual property) for creating a valid security interest over the token.

Any legal framework on tokenisation must address this issue. The token taxonomy proposed in this paper will also assist in determining the nature of security interest that can be created. For instance, security over an ownership token will amount to a "look through" security interest in the underlying reference asset. Whereas a security over an investment token or a securities token will amount to security interest over the rights attached to the token itself.

Creating a framework for security creation

As in the case of a pledge over securities, where the pledge is noted and operationalised in the depository system, a similar mechanism may be put in place for creation of pledge over tokens. The custodian of the tokens can implement operational guidelines to note security and other third party interests over the tokens.

A simpler manner of making a security interest in favour of a creditor effective against third parties is by obtaining control over the tokens or having a custodian maintain the tokens on its behalf.[121]

112 UNIDROIT, Principles on Digital Assets and Private Law (2023) para 8.1.

113 TPA 1882, Section 3 (definition of 'actionable claim').

114 TPA 1882, Chapter II, Sections 130-132.

115 TPA 1882, Section 58.

116 Contract Act 1872, Section 172.

117 SARFAESI 2002, Section 2(n).

118 Contract Act 1872, Section 126.

119 TPA 1882, Section 100.

120 For example, pursuant to Section 77 of the CA 2013, an Indian company is mandatorily required to register the particulars of the charge created by the company and the charge holder. Such registration of a charge by the company can be publicly viewed on the website of the MCA, as part of the master data of the company, and constitutes a public notice of the same.

121 UNIDROIT, Principles on Digital Assets and Private Law (2023) Principle 15.

(Indian) Securities Contracts (Regulation) Act, 1956 ("SCRA 1956"), Securities Exchange Board of India Act, 1992 ("SEBI Act"), the Rules under the SEBI Act, and the Companies Act, 2013 ("CA 2013")

(a) **Definition of 'securities', would tokens classify as securities? –** The definition of "securities" under Section 2(h) of the SCRA 1956[122] is broadly worded and *inter alia* includes[123]:

- marketable securities of a like nature in or of any incorporated company or other body corporate;
- derivatives;
- units or any other financial instruments issued by any collective investment scheme ("**CIS**") to the investors in such schemes;
- and units or any other instrument issued by any pooled investment vehicle; and
- such other instruments as may be declared by the Central Government to be securities.

The aforesaid definition is inclusive, which takes into *"its purview, not only matters specified therein but also all other types of securities as commonly understood."*[124] The usage of the term 'includes' accords it a wide interpretation and liberal construction.[125] Therefore, the definition of securities as per SCRA 1956 will also include instruments that can be reasonably included within its purview, keeping in mind their nature and impact.[126]

That said, whether a particular token constitutes a 'security' within the meaning of SCRA 1956 is a fact-specific determination, dependent upon the specific structure, features, and underlying rights associated with the token in question. **Under the proposed token taxonomy, there is a case for classifying both securities tokens and investment tokens as "securities" by appropriate amendments to S. 2(h) of the SCRA. The characteristics below may be used to support this classification.**

(b) **Tokens as marketable securities**

Securities tokens and investment tokens may also be regarded as "*marketable securities of a like nature*" to shares or debentures, given their underlying economic characteristics. For instance, if a digital token represents ownership interest in a body corporate, it is no different from a share. Similarly, if a digital token represents any indebtedness of the issuer in relation to any amounts lent by the holder of the digital token, it is nothing but a debenture.[127] Marketability is another essential characteristic of securities. Securities tokens and investment tokens are capable of being bought and sold in the market, regardless of the market size, and have high liquidity and ease of transferability.

(c) **Tokens as 'derivatives'**

If a token's value is derived from securities or is contractually linked to the price or index of prices of underlying securities or commodities, it could be categorised as a 'derivative'.[128] If a token is held to be a derivative, then it cannot be traded on virtual platforms by virtue of Section 18A of SCRA 1956, which provides that contracts in derivatives will be legal only if they are traded on a recognised stock exchange ("**RSE**") and settled through the clearing house of an RSE. This requirement of settlement through a clearing house of an RSE is in contrast with the automated settlement process for tokens, built as part of the underlying smart contracts. Smart contracts effectively eliminate the need for traditional clearing houses by facilitating real-time settlement of trades. Consequently, the said requirement seems to be incompatible with the very architecture of tokenised instruments (in the event such tokens are classified as derivatives). In view of the above, if regulators intend to permit trading of such derivative-like tokens, the following options may be explored:

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122 The definition of the term 'securities' prescribed under Section 2(h) of the SCRA 1956 is provided as under:

"securities" include: "(i) shares, scrips, stocks, bonds, debentures, debenture stock or other marketable securities of a like nature in or of any incorporated company or other body corporate; (ia) derivative; (ib) units or any other instrument issued by any collective investment scheme to the investors in such schemes; (ic) security receipt as defined in clause (zg) of section 2 of the Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest Act, 2002; (id) units or any other such instrument issued to the investors under any mutual fund scheme: "securities" shall not include any unit linked insurance policy or scrips or any such instrument or unit, by whatever name called, which provides a combined benefit risk on the life of the persons and investment by such persons and issued by an insurer referred to in clause (9) of section 2 of the Insurance Act, 1938; (ida) units or any other instrument issued by any pooled investment vehicle; (ie) any certificate or instrument (by whatever name called), issued to an investor by any issuer being a special purpose distinct entity which possesses any debt or receivable, including mortgage debt, assigned to such entity, and acknowledging beneficial interest of such investor in such debt or receivable, including mortgage debt, as the case may be; (ii) Government securities; (iia) such other instruments as may be declared by the Central Government to be securities; and (iii) rights or interest in securities."

123 SCRA 1956, Section 2(h), sub-sections (i), (ia), (ib), and (ida).

124 Sudhir Shantilal Mehta v CBI, 2009 (8) SCC 1 (41).

125 N.D.P. Namboodripad v Union of India, (2007) 4 SCC 502.

126 State of Bombay v Hospital Mazdoor Sabha, 1960 SCC OnLine SC 44.

127 See similar arguments made in the context of Singapore - Monetary Authority of Singapore, 'A Guide to Digital Token Offerings' (14 November 2017).

128 SCRA 1956, Section 2(ac).

- recognition of automated settlement processes on virtual trading platforms as functionally equivalent to a clearing house (which would require significant legal recognition); or
- amending Section 18A to carve out a regime for tokenised derivatives, recognising that their settlement infrastructure inherently provides the safeguards that clearing houses were designed to ensure.

(d) **Investment tokens as units of a CIS**

The issuance of investment tokens may also be classified as a CIS under Section 11AA(2) of the SEBI Act and the SEBI (Collective Investment Schemes) Regulations, 1999 ("**CIS Regulations 1999**"). A CIS is defined broadly as any scheme or arrangement having the following characteristics:

- Contributions or payments are pooled from investors (by whatever name called).
- The pooled funds are used for the purposes of the scheme or arrangement.
- Investors subscribe with the expectation of receiving profits, income, produce, or property.
- The property/contributions of the scheme are managed by someone on behalf of the investors.
- The investors do not have day-to-day control over the management or operation of the scheme/arrangement.

Notwithstanding the above, certain schemes or arrangements satisfying the prescribed conditions will not be considered a CIS ("**Identified Exceptions**")[129]. Accordingly, if a token issuance factually satisfies the four-limb test as specified above and does not fall within the Identified Exceptions, the tokens may be regarded as units of a CIS, and consequently, as securities under the SCRA, 1956.

In such an event, the issuer is required to obtain registration with SEBI and conduct its activities in accordance with the provisions of the SEBI Act and the CIS Regulations 1999.[130]

Additionally, under the CIS Regulations:

- a CIS cannot be launched for the purpose of investing in securities[131]; and
- units of a CIS are required to be mandatorily listed on a recognised stock exchange[132], whereas tokens are inherently structured to be traded and settled on decentralised or virtual platforms through smart contracts, rather than traditional exchange mechanisms.

By way of regulatory backdrop, note that the CIS framework was originally conceived to regulate unconventional fund-mobilisation schemes such as plantation ventures, agribusiness bonds and similar arrangements that bore characteristics of ponzi-like schemes, rather than to govern mainstream securities investments. In light of this legislative intent, and considering the structural incompatibility and regulatory restrictions applicable to tokenisation models (as discussed above), it may be difficult to accommodate tokenisation within the existing CIS regime. Accordingly, **a specific regulatory carve-out excluding investment tokens from the ambit of CIS would be a prudent policy consideration. A separate set of regulations is needed to govern Investment Tokens**.

(e) **Tokens as units of a pooled investment vehicle**

Please note that a pooled investment vehicle, as defined under SCRA, 1956[133] means a fund established in India in the form of a trust or otherwise, such as a mutual fund, an alternative investment fund, a CIS or a business trust[134] and registered with SEBI, or such other fund, which raises or collects monies from investors and invests such funds in accordance with applicable SEBI regulations.

In addition to the CIS framework (as discussed above), mutual funds ("**MFs**") and alternative investment funds ("**AIFs**") are regulated under distinct and independent regulatory regimes, namely the SEBI (Mutual Funds) Regulations, 1996 ("**MF**

129 Any scheme or arrangement: (a) made or offered by a co-operative society registered under the Co-operative Societies Act, 1912 or a society being a society registered or deemed to be registered under any law relating to co-operative societies for the time being in force in any State; (b) under which deposits are accepted by non-banking financial companies as defined in clause (f) of section 45-I of the Reserve Bank of India Act, 1934; (c) being a contract of insurance to which the Insurance Act, 1938, applies; (d) providing for any Scheme, Pension Scheme or the Insurance Scheme framed under the Employees Provident Fund and Miscellaneous Provisions Act, 1952; (e) under which deposits are accepted under section 58A of the Companies Act, 1956; (f) under which deposits are accepted by a company declared as a Nidhi or a mutual benefit society under section 620A of the Companies Act, 1956; (g) falling within the meaning of Chit business as defined in clause (d) of section 2 of the Chit Fund Act, 1982; (h) under which contributions made are in the nature of subscription to a mutual fund; (i) such other scheme or arrangement which the Central Government may, in consultation with SEBI, notify.

130 CIS Regulations 1999, Regulation 3; SEBI Act 1992, Section 12(1B).

131 CIS Regulations 1999, Regulation 13(c).

132 CIS Regulations 1999, Regulation 36.

133 SCRA 1956, Section 2(da).

134 As defined in sub-section (13A) of section 2 of the (Indian) Income Tax Act, 1961 ("**ITA 1961**")

Regulations 1996)[135] and the SEBI (Alternative Investment Funds) Regulations, 2012 ("**AIF Regulations 2012**")[136] respectively.

More recently, SEBI has also introduced a framework for fractional ownership platforms ("**FOPs**") in the context of real estate. FOPs are regulated under the SEBI (Real Estate Investment Trusts) Regulations, 2014 ("**REIT Regulations 2014**")[137] which were amended in March 2024 to introduce a new category of Small and Medium Real Estate Investment Trusts ("**SM REITs**").[138] Under this regime, FOPs that pool investor funds for real estate acquisition are required to register as SM REITs[139] and mandatorily list its units on a recognised stock exchange[140].

Accordingly, while tokenised structures may not fall squarely within the existing regulatory frameworks for MFs, AIFs, or FOPs, tokens may nonetheless be characterised as units of a pooled investment vehicle (if a trust structure is adopted) for the purposes of securities law, and therefore, as securities.

(Indian) Registration Act, 1908 ("Registration Act 1908")

In India, any instruments modifying/transferring any right, title, or interest in immovable property of INR 100 or more must be compulsorily registered to affect a valid transfer of property rights.[141] Further, any transfer of ownership or interest in immovable property must be effected through a duly executed and registered document.[142] Therefore, any transfer of ownership tokens representing full or fractional ownership, security interests, leasehold rights, or revenue-sharing entitlements in an underlying immovable reference asset could be required to be registered pursuant to the Registration Act 1908. Further, the process of registration requires the physical presence of the parties or their representatives.[143] The person presenting any document for registration needs to affix their photograph and fingerprint on the documents compulsorily.[144] For documents relating to the transfer of ownership of immovable property, the photographs and fingerprints of the buyer and the seller also need to be affixed to the documents.[145] Such modalities of registration are incompatible with the digital transfer of tokens.[146] **A digital infrastructure layer that enables parties to complete all these actions digitally would enable the use case for ownership tokens representing interest in immovable properties.**

(Indian) Consumer Protection Act, 2019 ("CPA 2019")

CPA 2019 has established regulatory authorities and provides for settling consumer disputes, complaints to be made against product manufacturers, product sellers and product service providers, in respect of defects in the product/services, unfair trade practices, pyramid schemes by 'direct-sellers' (*defined below*) and false and misleading advertisements, among others. CPA 2019 defines 'e-commerce' as the *"buying or selling of goods or services including digital products over digital or electronic network"*.[147] The Consumer Protection (E-Commerce) Rules, 2020 ("**E-Commerce Rules 2020**") define an 'e-commerce entity' as *"any person who owns, operates or manages digital or electronic facility or platform for electronic commerce, but does not include a seller offering his goods or services for sale on a marketplace e-commerce entity"*.[148] This expansive definition is sufficiently broad to include digital tokens issued pursuant to asset tokenisation, particularly when such tokens are offered or traded through online platforms or exchanges. Furthermore, online platforms that facilitate the issuance, sale, or trading of digital tokens are also likely

135 Briefly, mutual funds are required to be structured as trusts, with a sponsor establishing the fund and a trustee holding the assets in fiduciary capacity for the benefit of investors. A separate AMC is appointed to manage the pool of funds in accordance with the investment objectives disclosed in the scheme information document. Units of mutual funds represent an undivided beneficial interest in the pool, and investors share the risks and returns of the underlying portfolio.

136 Briefly, AIFs are privately pooled vehicles, typically structured as trusts, companies, or LLPs, which raise funds from investors (Indian or foreign) with a defined investment policy. AIFs are categorised into three classes - Category I (venture capital, SME, infrastructure), Category II (private equity, debt funds), and Category III (hedge funds). Unlike mutual funds, AIFs are generally close-ended and cater to sophisticated or high-net-worth investors, with minimum ticket sizes prescribed. Investors in an AIF are allotted units or partnership interests that evidence their pro rata interest in the pooled vehicle.

137 Briefly, under FOP model, investors pool funds to acquire ownership interests in real estate assets, with the pooled vehicle being registered as a form of regulated entity. The idea is to democratise access to high-value real estate by issuing fractional units that represent undivided ownership interests in the underlying property. These platforms operate under a trust-based structure, with professional managers handling the acquisition and management of the asset, and units representing investor participation

138 SM REITs are a subclass of Real Estate Investment Trusts designed specifically to regulated pooled investment vehicles holding real estate assets valued between INR 50 crores and INR 500 crores, with a minimum of 200 investors.

139 REIT Regulations, 2014, Regulation 26I.

140 REIT Regulations, 2014, Regulation 26ZD.

141 Registration Act, 1908, Section 17; TPA 1882, Section 54; Suraj Lamp & Industries (P) Ltd. v State of Haryana, (2012) 1 SCC 656.

142 Registration Act, 1908, Section 17.

143 The Registration Act, 1908, Section 32.

144 The Registration Act, 1908, Section 32A.

145 The Registration Act, 1908, Section 32A.

146 NITI Aayog, Blockchain: The India Strategy, Part I (January 2020) 30.

147 CPA 2019, Section 2(16).

148 E-Commerce Rules 2020, Rule 3(b).

to be classified as 'e-commerce entities' under the CPA 2019 and the E-Commerce Rules 2020. Consequently, these platforms may become subject to the obligations and consumer protection standards prescribed therein. As India develops its legal framework, it should make clear that ownership tokens are not to be treated as 'goods', and that platforms or exchanges for such tokens are not 'e-commerce entities' under the Consumer Protection Act, 2019.

VDA Framework under the Prevention of Money Laundering Act, 2002 ("PMLA 2002")

(a) **Tokens are 'virtual digital assets' ("VDAs").** Here, a VDA means any information or code or number or token (not being Indian currency / foreign currency) which: (a) is generated through cryptographic means or otherwise; (b) provides a digital representation of value exchanged with or without consideration, (i) with the promise or representation of having inherent value, or (ii) functions as a store of value, or a unit of account including its use in any financial transaction or investment (but not limited to investment scheme); and (c) can be transferred, stored or traded electronically.[149] VDAs attract implications under, *inter alia*, AML/KYC and tax regulations.

(b) **Anti-money laundering / know-your-customer ("AML/KYC") compliance**. PMLA is the legislation prescribing the AML/KYC compliance norms for India. The Government of India ("**GoI**"), through a notification dated March 7, 2023[150], has included entities providing services in relation to VDAs (a virtual asset service provider, "**VASP**") in the definition of "reporting entities" for the purposes of PMLA 2002. A VASP is defined as any entity conducting any of the following activities on behalf of any other person in the course of business[151]: (a) exchange between VDAs and fiat currencies; (b) exchange between one or more forms of VDAs; (c) transfer of VDAs; (d) safekeeping or administration of VDAs or instruments enabling control over VDAs; and (e) participation in and provision of financial services related to an issuer's offer and sale of a VDA. The issuer of the tokens and the provider of a transfer platform for the tokens will be classified as a VASP.

The central agency in India responsible for monitoring PMLA compliance, the FIU-Ind, subsequently published the 'AML & CFT Guidelines for Reporting Entities Providing Services Related to Virtual Digital Assets', which came into effect on March 10, 2023 ("**FIU-Ind Guidelines 2023**"). Pursuant to the FIU-Ind Guidelines 2023, every VASP operating in India needs to: (a) register with the FIU-Ind; (b) adopt the prescribed KYC verification processes to verify the identity of users at the time of onboarding; and (c) comply with PMLA requirements (e.g., maintaining transaction records for a period of 5 years, reporting suspicious transactions and specified transactions to the FIU-Ind). Failure to obtain registration with the FIU-Ind while acting as a VASP attracts a penalty ranging from INR 10,000 to INR 1,00,000 for each failure[152], for failing to comply with its obligations as a VASP[153], and is also liable to be punished under the discretionary powers in the PMLA.

ITA 1961

Indian tax laws require the person responsible for paying any resident any sum as consideration for the transfer of a VDA (including tokens) to deduct 1% of such sum as income tax at source, with some exceptions for small-scale transactions.[154] Income from the transfers of VDA is further taxed at 30%.[155] No deduction, except the cost of acquisition, is allowed while reporting income from the transfer of digital assets, and losses from VDAs cannot be set off against any other income.[156] In cases where the transfer involves multiple parties, such as the token exchange, brokers (apart from the actual transferor and transferee of tokens), the tax department has issued a circular[157] clarifying the person(s) responsible for deducting these taxes. The circular also provides guidance on the manner of tax deduction in cases involving exchange platforms. The tax department has also issued a separate circular[158] to clarify taxability in instances where the transfer of VDAs takes place outside an exchange or consideration other than cash is involved. Consequently, an entity participating in the tokenisation lifecycle (as a broker, exchange, transferor or transferee of tokens) must evaluate their tax withholding obligations and undertake requisite reporting compliance, if any. As India develops its regulatory framework for asset tokenisation, a dedicated tax regime should be considered for asset-backed tokens, or alternatively, in the case of ownership tokens, the tax treatment could look through to the underlying reference asset to determine the appropriate tax rate.

149 ITA 1961, Section 2 (47A).

150 F. No. P-12011/12/2022-ES Cell-DOR, Department of Revenue, Ministry of Finance (7 March 2023).

151 PMLA 2002, Section 2(1)(sa)(iv).

152 Each day of non-reporting constitutes a separate non-compliance, and therefore, the penalties for not obtaining registration under PMLA can stack up to a significant sum.

153 PMLA 2002, Section 13(2).

154 ITA 1961, Section 194S.

155 ITA 1961, Section 115BBH(1).

156 ITA 1961, Section 115BBH(2).

157 Central Board of Direct Taxes ("**CBDT**"), Circular No 13 of 2022 (22 June 2022).

158 CBDT, Circular No. 14 of 2022 (28 June 2022).

(Indian) Foreign Exchange Management Act, 1999 ("FEMA 1999") and underlying regulations

FEMA 1999 is the Indian exchange control legislation. Transactions involving tokens may be undertaken across jurisdictions, inviting the applicability of FEMA 1999.

Outward remittances in fiat currency with the objective of obtaining VDAs are not contemplated as a permissible cross-border transaction under the FEMA. Transactions such as investments by resident Indians in securities issued by offshore companies, gifts to non-residents, donations to charitable organisations and expenses for private or business visits or medical expenses abroad are governed by the Master Direction – Liberalized Remittance Scheme released by the RBI on January 01, 2016 (as amended from time to time) ("**LRS Guidelines 2016**"). While the LRS Guidelines 2016 permit certain types of transactions in the nature of investments by resident Indians outside India (subject to an annual limit of USD 250,000, cross-border remittances by Indian residents for investments in VDAs are not explicitly permitted under the LRS Guidelines 2016.[159] Authorised dealer category I banks typically formulate their own internal risk management and AML policies, which may permit or decline such transactions, based on their own risk appetite and internal risk mitigation procedures and steps adopted for undertaking due diligence and money laundering checks.

As India develops its legal framework, a 'look-through' principle should be considered under FEMA to treat the underlying reference asset of a token as the basis for regulatory compliance, ensuring that cross-border transfers of VDAs do not inadvertently violate exchange control laws.

Advertising Standards Council of India's ("ASCI") 'Guidelines for Advertising of Virtual Digital Assets and Linked Services, 2022' ("ASCI VDA Guidelines 2022")

ASCI is a voluntary self-regulatory organisation which ensures that advertisements in India remain fair, honest and compliant with the ASCI 'Code of Self-Regulation of Advertising Content in India'. ASCI norms are viewed as standard industry-level recommendations, but not binding obligations[160]. ASCI can communicate non-compliances and its recommendations to the Ministry of Information and Broadcasting and the Department of Consumer Affairs for appropriate action.[161]

ASCI released the ASCI VDA Guidelines 2022 [162] to protect consumer/investor interests from advertisements of VDAs that are misleading or do not adequately convey the risks associated with such products. The ASCI VDA Guidelines 2022 stipulate that all advertisements for VDA products or exchanges, or featuring VDAs, must carry a prominent and unmissable disclaimer that such products are *"unregulated and can be highly risky*" and that regulatory recourse may be unavailable for losses from such transactions. The ASCI VDA Guidelines 2022 also contain additional prescriptions for the content of such advertisements – for example, VDA advertisements should not be presented as a solution to financial troubles or personality issues, or that celebrities appearing in such advertisements must take special care to ensure they have done their due diligence on the statements and claims made in the advertisement.

In determining the applicability of legislations to tokens, the use case of the tokens and the nature of the reference asset must also be considered. There may also be additional legislations that govern such digital tokens, especially considering the specific use case of each token.

Interactions with private international law

As stated above, 'tokenisation' is the process that creates a digital representation of the value, rights and claims associated with a real-world or digitally native property that can be stored electronically.[163] Tokenisation typically involves recording transactions through decentralised or distributed ledgers. The digital format of these tokens and their storage on decentralised systems lead to localisation issues.[164] The plethora of participants (which may be located in different jurisdictions) involved in token transactions (which transactions may also occur in various jurisdictions) may create objective connections with many different jurisdictions.

159 Reserve Bank of India, 'FAQs on Liberalised Remittance Scheme' (6 April 2023).

160 Sameer Jain v Union of India, WP (C) No. 9823 of 2017, decision dated 7 February 2020 (Del); Muthoot Finance Ltd. v Advertising Standards Council of India, CS (OS) 483/2022, order dated 22 August 2022 (Del).

161 Muthoot Finance Ltd. v Advertising Standards Council of India, CS (OS) 483/2022, order dated 22 August 2022 (Del).

162 Advertising Standards Council of India, Guidelines for advertising of Virtual Digital Assets and linked services (23 February 2022)

163 Hague Conference on Private International Law, Prel. Doc.: Private Int'l Law Issues Relating to Digital Tokens (2024) 1 accessed 14 April 2025.

164 Ibid.

This creates a situation where the traditional private international principles (such as the *lex situs*[165] rule) are challenging to apply. These issues, in turn, lead to private international law concerns regarding jurisdiction, applicable law and enforcement[166], and forum shopping. The tendency for forum shopping is further intensified as the development of domestic laws relating to tokenisation/tokens has not been coordinated or uniform.[167]

This paper excludes from its scope the jurisdictionally outward-looking issues surrounding private international law aspects of tokens and instead intends to design an inward-looking framework for asset tokenisation in India. In any case, the UNIDROIT Principles provide a conflict-of-laws rule to mitigate the above issues around the legal certainty of jurisdiction and applicable law concerns to the greatest possible extent.[168]

165 Literally, 'law of the (place of) situation'. It is a rule in private international law that states that the law of the jurisdiction in which the property is situated applies.

166 Simply put, it is difficult to identify which country's courts should hear the dispute regarding the tokens/ tokenised reference assets and what laws they should apply. Further, if the court passes a judgment, it is difficult to ensure that it is recognised and enforced in other countries.

167 UK Law Commission, Digital Assets in Private International Law: FAQs on the Relationship with Tax Law, Banking Regulation, and the Financial Markets (13 January 2025).

168 UNIDROIT, Principles on Digital Assets and Private Law (2023) Principle 5. Proprietary issues in respect of tokens are first to be governed by the domestic law of the country expressly specified in the token; failing which - secondly, the domestic law of the country expressly specified in the system on which the ownership of the tokens is recorded; failing which - thirdly, the domestic law of the country where the issuer has its statutory seat (if the issuer is identifiable and if the seat is readily ascertainable by the public), and the list of priority so continues.

Chapter 3: Proposed Token Taxonomy – Pros, Cons, and Use Cases

Proposed taxonomy for asset tokens. As discussed in Chapter 1 above, this paper proposes the following taxonomy for asset tokens: (a) securities tokens; (b) investment tokens; and (c) ownership tokens. This classification is based on their use case and the nature of their underlying reference asset. First, securities tokens represent financial instruments and investment products traditionally used in capital markets. Second, investment tokens provide investors with financial interests in underlying reference assets without conferring direct ownership. Last are the ownership tokens, which offer fractional ownership rights or utilisation rights in the underlying reference assets.

This chapter delves into each category of tokens, with an attempt to arrive at legal definitions for each category for the Indian context. It will then critically evaluate the advantages and disadvantages associated with each type of token and conclude with a case study of their practical applications.

Securities Tokens

Defining a 'securities token'

The first category, 'securities tokens', is a digital representation of the value, rights and claims associated with existing capital market instruments. The reference asset for a securities token is a financial instrument that is available for investment in the Indian capital markets, meaning it is currently recognised and regulated by one of the financial services regulators in India. These include – money market funds, public equity, sovereign bonds[1], treasury bills, corporate listed bonds[2], municipal bonds, private equity, private debt, REITs and INVIT units, and securitisation notes. The financial services regulators in India are the Reserve Bank of India ("**RBI**"), the Securities and Exchange Board of India ("**SEBI**"), the Ministry of Finance ("**MoF**"), the Ministry of Corporate Affairs ("**MCA**"), the Insurance Regulatory Authority of India ("**IRDAI**") and the Pension Funds Regulatory and Development Authority ("**PFRDA**").[3]

The primary definition of capital market instruments in India is the definition of the term 'securities' under the SCRA 1956. Securities, as per Section 2(h) of SCRA 1956, includes: shares, scrips, stocks, bonds, debentures, debenture stock; other marketable securities of a like nature in or of any incorporated company, pooled investment vehicle or other body corporate; derivatives; units or instruments issued by CISs, pooled investment vehicles, or mutual funds; security receipts; government securities; and rights or interests in securities. Further scope is also given to the Government of India to widen the definition.[4] The definition of securities as per Section 2(h) of the SCRA 1956 is an inclusive definition[5] that reflects the regulatory catch-all

[1]1 In February 2025, Thailand's Securities and Exchange Commission launched a blockchain-based trading platform to enable securities companies to trade digital tokens. These tokenised government bonds are regulated by the Thai Securities and Exchange Act and the Digital Asset Act. They back a Thai Baht stablecoin (digital currency backed by real currency) offering. The Thai Central Bank will develop the platform to enable a secondary market for trading these stablecoins. See Money and Banking (Thailand), 'Thai SEC launches blockchain-based trading platform for tokenised government bonds' accessed 25 March 2025.

2 A few nations have even launched schemes to promote the issuance of tokenised bonds. For example, the Monetary Authority of Singapore launched the Global-Asia Digital Bond Grant Scheme ("**Scheme**") in January 2025. The Scheme seeks to "catalyse the issuance and broader market adoption of digital bonds". The Scheme grants funding for up to 30% of identified eligible expenses (subject to size caps) for qualifying digital bond issuances. Here, "digital bonds" mean bonds issued on a digital platform using DLT. Companies and non-bank financial institutions with an Asian nexus are qualified issuers. Conditions for a qualifying issuance inter alia includes that the bonds must be: (a) issued on a designated digital asset platform in Singapore; (b) listed on the Singapore Exchange (SGX) or a designated digital asset platform; (c) substantially arranged by licensed entities in Singapore; (d) of a minimum issuance size of S$100 million; and (e) must be denominated in Asian local or G3 currencies. Further, to receive the benefits of the Scheme, where issuance size is at least S$200 million, the bond must be digitally native. The OCBC Bank, Singapore launched its first rounds of tokenised bonds created on its platform to corporate accredited investors in February 2025, availing the benefits of the Scheme. The reference asset for all of OCBC's rounds will be investment-grade bonds, not limited to fixed income, which are structured based on the client's desired tenor and yield (even a 1-year tenor is permitted). The entire lifecycle of the bond, i.e. creation, minting, ownership transfers, custody, and redemption through token burning, is to be on the same platform. See Monetary Authority of Singapore, 'Global-Asia Digital Bond Grant Scheme' accessed 25 September 2025; OCBC, 'OCBC is first bank in Singapore to avail bespoke tokenised bonds via asset tokenisation platform' (Press Release) accessed 25 September 2025.

3 Ministry of Finance (India), 'Financial Regulators'.

4 SCRA 1956, Section 2(h).

5 Sudhir Shantilal Mehta v CBI, 2009 (8) SCC 1 (41).

approach behind this definition. Tokenisation and creating exact digital representations of 'securities' that fall within the scope of SCRA 1956, and which are regulated by a financial services regulator in India, result in a 'securities token'.

Simply a new form, plus additional process efficiencies

Referring to securities tokens as an exact digital representation of securities implies two things:

(a) Tokens that are not exact representations of existing securities will not be classified as a securities token. A token representing fractional ownership of an existing security or a token which is 'linked' to a security but does not capture all value, rights and claims associated with the security[6] would fall into the category of investment tokens and/or ownership tokens.

(b) Securities tokens are simply a newer form of securities. Securities in India were initially issued in physical form (such as physical paper certificates and manual logging in physical registers/ ledgers/ books), which had slower settlements, were fragmented and manual-intensive. India has recently shifted largely to the dematerialised form of securities (electronic certificates issued through a digital process and semi-automatic logging in electronic ledgers), which facilitates faster settlements (at T+1 for both initial listed issuances and secondary transfers). However, this shift creates dependencies on intermediaries.[7] A shift to securities tokens will be a natural progression.[8] Tokenisation provides a shared record system and enables real-time asset transfers. This helps to lower settlement risk and streamline the roles of intermediaries.[9]

Issuing securities tokens on programmable platforms

The initial step in tokenising securities involves issuing the security on a programmable platform. This creates an exact digital representation of a security, with the corresponding rights and obligations – i.e., the securities token. Once the securities token is issued, smart contracts are typically deployed in the programmable platform to govern the issuance and transfer rules for such tokens. Smart contracts typically define the terms of ownership, dividends, voting rights, and the process for transferring tokens associated with equity instruments. For debt instruments, the smart contracts typically define (a) the terms of interest distribution – a dispensing interest amounts to bondholders in form of tokens at specified times without human intervention; (b) maturity and redemption – reinstitution of the principal amount at the end of the bond's term or maturity without any manual intervention; and (c) corporate actions – to execute actions such as re-purchase of bonds or refinancing.

Comparison between record-keeping for securities (traditional centralised systems) and securities tokens (the programmable platforms)

The programmable platform also maintains a record of ownership of the tokens using a unique identifier (termed the 'platform address'). A platform address is an alphanumeric string that can hold tokens, can interact with the programmable logic on the platform and assist with transfers – it is similar to a 'demat account number'. The securities tokens are linked to the platform address of the holder – again, similar to how traditional securities are linked to the demat account of the holder.

The key difference is that securities tokens rely on programmable platforms as the underlying technology and are decentralised, whereas traditional securities rely solely on centralised institutions (like depositories) to maintain records and facilitate transfers. The traditional systems for issuing and logging securities are also, by and large, isolated from one another. For example, in the case of a high-value debt issuance, the issuance platform (the EBP platform) does not directly interact with the ownership ledger maintained by the depositories (NSDL or CDSL). Given this, both the issuance and logging of ownership on the centralised ledger maintained by the depositories usually require coordination with different systems, executing documentation, and completing checks at different levels. This practically means that there are process inefficiencies that limit transfer and recording timelines. These drawbacks persist at various stages, including creating a charge on securities, transferring/ settling/ redeeming assets, as well as disputing/ proving ownership or a right to claim. Continuing our earlier example, depositories typically credit debt securities after issuance on a T+1 day basis. Additionally, recording transfers of securities in the depository system typically occurs on a same-day / T+1 basis. Further, pledge or hypothecation marking or demat freeze requests are typically resolved on a same-day

6 A token can let people invest in or track a security without actually giving them ownership over the security. The token might reflect the security's price changes or income streams (like interest or dividends), but not other rights such as voting, full claims on the asset, or direct control. Examples include tokens that track share prices without granting shareholder voting, dividend-only tokens, or tokens representing only certain slices of a bond's risk or payoff. This allows easier trading and fractional ownership while keeping some legal and administrative aspects separate.

7 In India, public companies have been mandated to hold and issue securities only in demat form since 2018. Recently, private companies have also been required to mandatorily dematerialise their securities, with limited exceptions. See Ministry of Corporate Affairs, Companies (Prospectus and Allotment of Securities) Third Amendment Rules 2018 (10 September 2018); Ministry of Corporate Affairs, eBook Notification (12 February 2025).

8 World Economic Forum (WEF), Asset Tokenization in Financial Markets: The Next Generation of Value Exchange (2025) 7 Figure 1.

9 World Economic Forum (WEF), Asset Tokenization in Financial Markets: The Next Generation of Value Exchange (2025) 7.

basis. In contrast, tokenisation could have **atomic settlements (on a DvP basis)** [10], and recording on the programmable platform can be real-time.

Programmable Platforms Enable Seamless Transfers

In the case of securities tokens, the transfer mechanism is different and doesn't necessarily rely on the traditional depository model. The programmable platform itself acts as a ledger for tracking the securities tokens. Ownership is recorded directly on the programmable platform. Any transfer of tokens is also validated and recorded (typically immutably) on the programmable platform itself, allowing for a seamless transfer of ownership.

Tokenisation offers a unifying and programmable multi-function platform that can reduce the coordination burdens created by the current separated issuance, registry and verification platforms. A programmable platform can embed rules, automate actions, and synchronise and maintain an identical, up-to-date record of the status of the securities and related transactions across participants. Smart contracts are often used to automate processes like transfers, dividend distribution, voting, and more. In India, where approvals, issuance and logging of status updates frequently traverse isolated systems and semi-automatic touchpoints, tokenisation can standardise lifecycle events on a shared ledger and minimise reconciliation frictions.

In brief, tokenisation of financial instruments can (a) increase efficiency gains due to automation and disintermediation; (b) encourage transparency; (c) improve the liquidity associated with a financial instrument due to an 'always on' infrastructure; (d) support collateral mobility and pledge-management across counterparties; and (e) increase auditability of ownership, encumbrances and corporate actions.[11]

Potential to Enable Interoperability with Traditional Depository Systems

Even though programmable platform-based systems can handle token transfers directly, it is possible for tokenised security systems to integrate with traditional depository systems or centralised securities systems to bridge the gap between traditional securities and securities tokens.[12] To enable the integration of securities tokens into India's traditional depository system, a clear path can be developed by aligning programmable platforms with existing financial infrastructure. By establishing interoperability between programmable ledger systems and the centralised platforms used by NSDL and CDSL, it becomes possible to record and manage securities tokens alongside dematerialised securities seamlessly. Technological solutions can be designed to bridge these systems, enabling real-time and secure data exchange. Additionally, by updating the legal and regulatory framework, such as amending the SCRA 1956 and Depositories Act, 1996, securities tokens can be formally recognised as valid securities or ownership interests. This would allow their smooth transfer and settlement within the existing depository ecosystem, paving the way for broader adoption of tokenisation in India's capital markets.

Advantages

(a) **Automation and disintermediation**: Tokenisation of securities reduces the *need for middlemen* (brokers, clearinghouses, etc.). Investors can directly trade with each other on the programmable platforms or exchanges, reducing fees and delays in the process.[13] The use of smart contracts also reduces the dependency on intermediaries in executing transactions, verifying agreements, and distributing dividends or interest. This automation reduces transaction costs, increases speed, and streamlines the entire lifecycle of securities, including corporate actions (e.g., coupon or dividend payments, voting), escrow arrangements (e.g., release of funds), and collateral management (e.g., exchange of ownership interest).[14]

(b) **Real-time settlement**: Tokenisation enables atomic settlements. The programmable platform automatically updates ownership records and triggers corresponding financial transactions, ensuring that trades are completed instantly and without manual intervention.

(c) **'Always on' infrastructure**: Securities tokens can potentially be traded 24/7 on global exchanges. The elimination of middlemen and the digital nature of tokens make it easier to buy and sell securities in smaller amounts, which can improve liquidity, especially in markets where liquidity is traditionally limited (such as private equity).

(d) **Transparency and auditability**: As outlined above, every transaction of securities tokens will be recorded on the programmable platform, ensuring that all trades, ownership transfers, and asset histories are permanently stored and easily

10 An atomic settlement is a "simultaneous transfer of ownership of the tokenised instrument and the corresponding payment, if and only if both are in place, thus eliminating counterparty risk." It refers to a simultaneous DvP settlement. See OECD, Tokenisation of Assets and Distributed Ledger Technologies in Financial Markets (OECD Business and Finance Policy Papers No 75, January 2025) 17.

11 OECD, Tokenisation of Assets and Distributed Ledger Technologies in Financial Markets (OECD Business and Finance Policy Papers No 75, January 2025) 8.

12 As an example of integrating programmable platforms with the traditional financial network, the Swift network is looking to conduct pilots of digital asset and currency transactions in 2025. Swift, 'Live trials of digital-asset transactions via Swift to start 2025'.

13 OECD, The Tokenisation of Assets and Potential Implications for Financial Markets (OECD Blockchain Policy Series, 2020).

14 Ibid.

auditable. This transparency reduces fraud, prevents double-spending, and enables both investors and regulators to monitor activity in real-time.[15]

(e) **Clear ownership and transfer history**: Given that the ownership is recorded directly on the platform, it serves as evidence of ownership at any given time, with automatic updates upon transfer or trade.

(f) **Transparent Governance and Voting**: Tokenisation can facilitate automatic and transparent voting systems, with each token corresponding to voting rights. Smart contracts can ensure that voting processes are auditable and tamper-resistant, increasing trust in corporate governance. For example, a company could utilise smart contracts to facilitate shareholder voting, where each token represents voting rights. The blockchain can provide transparency in the voting process, showing who voted, when they voted, and for which candidate. Increased transparency may also be achieved in terms of regulatory compliance and interactions with regulators: as programmed regulatory restrictions are automatically enforced, and the regulator may be automatically notified through smart contracts when restrictions are modified or turned off. Regulators may also have quasi-real-time information about specific on-chain events of interest to them.

(g) **Composability and collateral mobility**: Standardised encumbrance metadata and interoperable token formats allow efficient re-use of assets across pledging, financing, and settlement chains, enhancing collateral mobility and liquidity management.

(h) **Flexible custody**: Custody models can range from full-custody to user-held models, with options for recoverability and supervised key management, improving user-centricity while maintaining security.[16]

(i) **Enhanced Compliance-by-Design**: Regulatory and compliance requirements (such as eligibility, holding limits, lock-ups, and transfer restrictions) can be hard-coded into tokens, improving ex-ante compliance and market integrity. Regulators may also have quasi-real-time access to on-chain events of interest. Further, events on the programmable platforms are recorded, enhancing oversight, facilitating real-time risk monitoring, and supporting proactive regulatory intervention.

Implementation Risk and Considerations

A legal framework for securities tokens must consider and seek to resolve for the following implementation risks:

(a) **Legal recognition and dual records:** A key challenge is the gap between digital representation and legal ownership. In most jurisdictions, including India, digital records on a blockchain may not be recognised as definitive proof of ownership. This generates legal complexity, since investors may incorrectly believe that owning a token grants them enforceable rights to the underlying asset when other regulatory filings and registrations may still be required. This can result in dual-record architectures where ownership rights are recognised on the programmable platform but may not be enforceable in courts, requiring reconciliation between the programmable platform records and traditional registries. This may create legal uncertainty for investors.

(b) **Programmable compliance issues**: The use of smart contracts in tokenisation permits for automated enforcement of compliance rules, such as investor eligibility, transfer constraints, and regulatory duties. However, this automation also presents significant drawbacks, notably due to the rigidity of smart contracts. Once deployed, smart contracts are immutable, meaning they cannot be changed to accommodate legislative changes. If a new regulation or policy mandates adjustments, the prior contract must be fully updated, which is often costly and impractical. Additionally, mistakes in coding compliance standards can lead to over-blocking, when lawful transactions are inadvertently stopped, generating friction for investors who may find themselves unable to purchase or sell their stocks due to technological constraints. On the other hand, poorly constructed compliance logic can create loopholes, allowing unscrupulous actors to exploit the system while technically conforming to regulatory standards, thereby eroding market integrity and increasing regulatory risks.

(c) **Custodial risks:** The choice between custodial and non-custodial models involves trade-offs in security, cost, and user control. Custodial systems, where a third-party entity holds and manages tokenised assets on behalf of investors, offer convenience but pose mismanagement concerns. A prime example is the FTX collapse[17]. Additionally, custodial services may require hefty charges for storage and transaction processing, making them unaffordable for normal investors. On the flip side, non-custodial alternatives, where investors retain full administration of their money, lessen the dangers associated with third parties but pose additional security concerns. Users are responsible for keeping their private keys, and if lost, the assets become permanently irretrievable. Furthermore, phishing assaults, hacking activities, and fraudulent schemes disproportionately target self-custody users, as many lack the technical ability to fully secure their wallets. The complexity of

15 The financial markets may benefit from the data integrity, immutability and security (no single point of failure, subject to consensus and governance vulnerabilities) as well as automatic auditability that are inherent to many blockchain based systems. In addition, DLT-based security registries may provide increased transparency and a clear record of beneficial ownership with certainty at any point in time. The role of registrars/transfer agents may thus be rendered redundant and corporate/shareholder registries replaced by the decentralised ledger itself.

16 See Figure 6 (Flexible Custody Arrangement Options) above.

17 Milind Tiwari and others, 'Crypto Crashes: An examination of the Binance and FTX scandals and associated accounting challenges' (2025) The British Accounting Review 101584.

managing self-custody systems also functions as a barrier to adoption, deterring investors who are unskilled at managing tokens.

(d) **Technological and operational risks:** Scalability remains a significant obstacle for tokenised securities, as many programmable platforms struggle to handle enormous transaction volumes efficiently.[18] Network stability and the risk of attacks can undermine trust in the system, particularly for smaller or less secure platforms. Tokenised assets are exposed to hacking, private key theft, and smart contract vulnerabilities. Poorly designed contracts or insecure integrations can result in significant financial losses. Centralised exchanges and custodians have been frequent targets of cyberattacks. These concerns generate hesitation among institutional investors, who value security and regulatory safeguards when dealing with financial assets.

(e) **Settlement leg constraints**: The absence of an integrated, riskless on-ledger cash (such as an integrated central bank digital currency) may limit the benefits of atomic settlement and may increase pre-funding and liquidity costs. Atomic settlement is not always optimal for all market participants.[19]

(f) **Liquidity and price bifurcation:** Non-interoperable platforms can fragment liquidity and price discovery, especially if parallel off-chain markets persist. This can lead to inefficiencies and arbitrage risks.[20]

(g) **Standards and interoperability gaps**: Diverse token standards, identity schemas, and messaging protocols hinder portability and multi-venue fungibility. Different blockchain networks lack standardisation, creating barriers to cross-chain transactions. This fragmentation limits liquidity, as tokenised assets may become trapped within specific blockchain ecosystems, requiring costly integration solutions to enable seamless transfers between networks. These bridging solutions can then introduce additional operational and cybersecurity risks.

(h) **Privacy and data risks**: Storing rich data on-chain must be balanced with confidentiality and compliance with local data protection requirements. The privacy offered by permissionless programmable platforms could pose substantial challenges for anti-money laundering and countering the financing of terrorism legislation. Selective disclosure mechanisms may also add complexity to platform design.

18 Aswini Yadlapalli, Shams Rahman and Pinapal Gopal, 'Blockchain technology implementation challenges in supply chains—evidence from the case studies of multi-stakeholders' (2022) 33(5) The International Journal of Logistics Management 278–305.

19 OECD, Tokenisation of Assets and Distributed Ledger Technologies in Financial Markets (OECD Business and Finance Policy Papers No 75, January 2025) 17.

20 OECD, The Tokenisation of Assets and Potential Implications for Financial Markets (OECD Blockchain Policy Series, 2020) 29; Financial Stability Board, The Financial Stability Implications of Tokenisation (22 October 2024) 14, 17.

Case Study 1: World Bank CHF Digital Bond – Project Helvetia III[21]

In May 2024, the World Bank issued its first digital bond denominated in Swiss Francs (CHF) by an international issuer settled using the Swiss Franc wholesale central bank digital currency ("**wCBDC**") provided by the Swiss National Bank ("**SNB**"). This CHF 200 million, 7-year bond was issued as a digitally native token on SIX Digital Exchange's ("**SDX**") private permissioned DLT platform, with Commerzbank serving as the sole underwriter, issuance agent, and paying agent. This bond issuance was part of Project Helvetia Phase III, which involves participating banks using the wCBDC to settle real bond transactions.

Figure 9 Case study 1: Tabular overview of the World Bank CHF Digital Bond

Issuer	**World Bank (International Bank for Reconstruction and Development, IBRD)**
Partners / Key Stakeholders	Swiss National Bank; SIX Digital Exchange; SIX Swiss Exchange; SIX Securities Services AG, the central Swiss depository; and Commerzbank (as the lead manager and issuing and paying agent).
Asset Type	Debt (Bond issuance)
Applicable Law	Swiss law governs the bonds
Size	CHF 200 million
Issue Date	May 15, 2024
Settlement Date	June 11, 2024
Duration, Maturity	7-year tenor (matures June 11, 2031)
Coupon / Yield / Pricing	Coupon: 1.1575% p.a. Issue price: 100% Yield: 1.1575% p.a.
Denomination	CHF 5,000 per bond
ISIN	CH1353258168
Listing & Trading	Dual listing on the SDX and SIX Swiss Exchange (the traditional exchange)
Settlement & Payment Mechanism	Initial settlement using the wCBDC through the Swiss National Bank. Secondary coupon and redemption payments are also made using tokenised CHF on SDX. Investors can hold the digital bond via traditional custodians since SDX connects to SIX Securities Services AG.
Allocation	The majority is placed in Switzerland; 60% to banks, bank treasuries, corporates; 39% to asset managers, insurance companies, pension funds; the remainder is with central banks & official institutions.
Ratings	Issuer rated Aaa (Moody's) / AAA (S&P)
Platform Operator	SIX Digital Exchange
Technology	DLT (R3 Corda)
Solutions	• Atomic settlement by using DLT and wCBDC for settlements. • SDX has developed an 'operational link' ensuring interoperability between the SIX Securities Services AG infrastructure, allowing investors to access their bonds through international central securities depositories (Euroclear, Clearstream). • The SDX DLT platform operates under the regulatory oversight and audit requirements of FINMA, the supervisory authority for the Swiss financial markets.
Strategic Impact	• Broader investor access, through dual listing on both the digital and traditional exchanges. • Increased security, efficiency and transparency by using DLT, as the platform offers an immutable record of a security's ownership and atomic settlements. Coupon payments and settlements are automated through smart contracts. • Showcases a real-world use case of wCBDC, boosting market confidence.

21 World Bank, 'World Bank partners with Swiss National Bank and SIX Digital Exchange to advance digitalization in capital markets' (Press Release, 15 May 2024); World Bank, 'World Bank partners with Swiss National Bank and SIX Digital Exchange to advance digitalization in capital markets' (Case Study, June 2024).

Case Study 2: European Investment Bank - SEK Digital Climate Awareness Bond[22]

In June 2023, the European Investment Bank ("**EIB**") had issued a SEK 1 billion Climate Awareness Bond (digital native) due 19 June 2025. The transaction was issued as a *digitally native* bond on the so|bond blockchain-based platform developed jointly by Crédit Agricole CIB and Skandinaviska Enskilda Banken. The digital issuance was structured under Luxembourg law, recorded on a public-permissioned blockchain (the "**PoCR Network**") The bond was admitted to the official securities list of the Luxembourg Stock Exchange and displayed on the Luxembourg Green Exchange (LGX), making it the first native digital green bond to appear on LGX.

Figure 10 Case study 2: European Investment Bank – Bond issuance on a public permissioned blockchain

Issuer	European Investment Bank (EIB).
Partners / Key Stakeholders	Joint lead managers / bookrunners: Crédit Agricole CIB and Skandinaviska Enskilda Banken. Legal advisers: Clifford Chance (for EIB), Linklaters (for lead managers).
Asset Type	Sovereign debt — Green bond (digitally native / tokenised).
Applicable Law	Luxembourg law
Size	SEK 1,000,000,000
Issue Date	June 19, 2025
Settlement Date / Cycle	Not specified in public releases.
Duration, Maturity	2 years, matured on June 19, 2025
Coupon / Pricing	Fixed coupon at 3.638% p.a., payable annually in arrear Issue price: 100%
Denomination	SEK 2,000,000
ISIN	LU2637450516
Listing & Trading	Luxembourg Stock Exchange Securities Official List (LuxSE SOL); displayed on Luxembourg Green Exchange (LGX).
Settlement & Payment Mechanism	Not specified in public releases.
Allocation	Not specified in public releases.
Ratings	Issuer rated AAA/ A-1+ (S&P) & Aaa (Moody's)
Platform Operator	Crédit Agricole CIB, the central account keeper
Technology	• so|bond blockchain-based platform, a public permissioned DLT. • The platform used a new type of blockchain validation logic, the Proof of Climate awaReness (PoCR) protocol, which enables an energy consumption comparable to non-blockchain systems and incentivises participating nodes to continually improve the environmental footprint of their infrastructures. More specifically, each node will be remunerated for its efforts according to a formula inversely linked to its environmental impact. • The notes can be transferred between holders on the PoCR Network without a positive act by a centralised entity, but still subject to oversight by the account keeper, Crédit Agricole CIB.
Strategic Impact	• Issuance on a public permissioned platform. Offers public viewability and logs of all events, including transfers (0x8AF1987dE88330A47aCE9d8A76fCcD625414777f). • This offering was aligned with both climate finance goals and technological innovation.

22 European Investment Bank (EIB), 'EIB issues its first ever digital Climate Awareness Bond and Swedish Krona transaction' (press release, 19 June 2023) https://www.eib.org/en/investor-relations/press/all/fi-2023-09-eib-sek-digital-bond-due-2025 accessed 1 December 2025; SEB, 'EIB premieres bond on blockchain-based platform' (press release/news) https://sebgroup.com/press/news/2023/eib-premieres-bond-on-blockchain-based-platform?showiframe=true accessed 1 December 2025.

Case Study 3: HK Government's November 2025 Green Bond [23]

On November 11, 2025, the Government of the Hong Kong Special Administrative Region ("**HK Government**") priced and announced its third issuance of *digitally native* Green Bonds under the Government Sustainable Bond Programme. The issuance, **marking the largest digital bond issuance in the world**, comprised four currency tranches (HKD, RMB, USD and EUR) and amounted to around HKD 10 billion. The issuance used the Central Moneymarkets Unit ("**CMU**") as the clearing and settlement system and HSBC Orion as the digital assets platform; several international banks (including HSBC and Crédit Agricole CIB) acted as joint global coordinators / lead managers and bookrunners. The offering marks the third in a series of digital green bond issuances by the HKSAR Government, following an initial HKD 800 million tokenised green bond issuance in early 2023 and a second HKD 6 billion tokenised green bond issuance in 2024.

Figure 11 Case study 3: Tabular overview of the HK Government's November 2025 Green Bond

Issuer	The Government of the Hong Kong Special Administrative Region (HK Government)
Partners / Key Stakeholders	Joint Global Coordinators, Joint Lead Managers, and Joint Bookrunners: HSBC, Bank of China (Hong Kong), Bank of Communications, BNP PARIBAS, Crédit Agricole CIB, ICBC (Asia) and J.P. Morgan. Joint Lead Managers, and Joint Bookrunners: Standard Chartered Bank, Société Générale, UBS Joint Green and Sustainable Bond Structuring Banks: Crédit Agricole CIB, Bank of China (Hong Kong), BNP PARIBA and Standard Chartered Bank. Fiscal Agent and Principal Paying Agent: HSBC Legal Advisers: Allen & Overy (to the Issuer), Ashurst (to HSBC, the platform provider), and Linklaters (to banks and agents).
Asset Type	Sovereign debt — Green bond (digitally native / tokenised).
Applicable Law	Hong Kong law
Size	Issued amount: around **HK$10 billion equivalent** across four tranches. Total subscription (book size) across the offering: over HK$130 billion. Tranche-wise: • HKD tranche: HKD 2.5 billion • RMB tranche: RMB 2.5 billion • USD tranche: USD 300 million • EUR tranche: EUR 300 million
Issue Date	November 11, 2025
Settlement Date / Cycle	T+1 settlement cycle
Duration, Maturity	• HKD tranche: 2 years, matures on November 11, 2027 • RMB tranche: 5 years, matures on November 11, 2030 • USD tranche: 3 years, matures on November 12, 2028 • EUR tranche: 4 years, matures on November 11, 2029
Coupon / Yield / Pricing	Coupon: • HKD tranche at 2.500% p.a. • RMB tranche at 1.900% p.a. • USD tranche at 3.625% p.a. • EUR tranche at 2.500% p.a. Issue price: 100%
Denomination	• HKD tranche: HKD 500,000 per bond • RMB tranche: RMB 10,000 per bond • USD tranche: USD 1,000 per bond • EUR tranche: EUR 1,000 per bond
ISIN	• HKD tranche: HK0001201927 • RMB tranche: HK0001201919 • USD tranche: HK0001201893 • EUR tranche: HK0001201901
Listing & Trading	Listing: Hong Kong Stock Exchange Clearing and settlement: via CMU (linkage to Euroclear / Clearstream) Digital trading/platform: HSBC Orion (the platform provider is HSBC)

23 Hong Kong Monetary Authority, 'HKSAR Government's Third Digital Green Bonds Offering' (Press Release, 11 November 2025) https://www.hkma.gov.hk/eng/news-and-media/press-releases/2025/11/20251111-6/\ accessed 1 December 2025; HSBC, 'HSBC Facilitates World's Largest Digital Bond Issuance in Hong Kong' (News Release) https://www.about.hsbc.com.hk/news-and-media/hsbc-facilitates-worlds-largest-digital-bond-issuance-in-hong-kong\ accessed 1 December 2025; Crédit Agricole CIB, 'Crédit Agricole CIB Once Again Supports Landmark Digitally Native Green Bond Issuance by the Hong Kong SAR Government' (Client News, 21 November 2025) https://www.ca-cib.com/en/news/credit-agricole-cib-once-again-supports-landmark-digitally-native-green-bond-issuance-hong\ accessed 1 December 2025; Hong Kong Government Green Bond Programme, 'Outstanding' (Institutional Outstanding List) https://www.hkgb.gov.hk/en/greenbond/institutionaloutstanding.html\ accessed 1 December 2025. To address inconsistencies in coupon reporting, this paper relies on the Hong Kong Monetary Authority's outstanding bond details.

Settlement & Payment Mechanism	Clearing and settlement via CMU (operated by HKMA) with linkage to Euroclear/Clearstream. Digital assets platform for issuance and on-platform features: HSBC Orion; option to access via traditional infrastructure (custodians) preserved.
Allocation	Not specified in public releases, but the Hong Kong Monetary Authority noted the expanded participation and that there were many first-time digital bond investors.
Ratings	Fitch AA- / Moody's Aa3 / S&P AA+, on par with the issuer's long-term rating.
Platform Operator	CMU OmniClear (operated by the Hong Kong Monetary Authority)
Technology	• HSBC Orion, which is a private, permissioned DLT platform. (The platform provider is HSBC.) • Direct participants were Bank of China (Hong Kong), Bank of Communications, BNP PARIBAS, Crédit Agricole CIB, HSBC, and ICBC (Asia). • KYC/AML is conducted off-chain as part of the process of onboarding the direct participants on the platform.
Solutions	• Issued as digitally native tokenised bonds with option for investor access via traditional market infrastructure (i.e., issuance is in a tokenised bond format, but investors may hold through traditional custodians). • First global digital bond issuance to integrate tokenised central bank money (e-RMB and e-HKD) in the settlement process alongside traditional rails. • Expansion in size, tenor (up to 5 years for RMB tranche) and investor participation compared to previous issuances. • Pre-issuance green certification (HKQAA Pre-issuance certificate) and Second Party Opinion by Vigeo Eiris for the Green Bond Framework.
Strategic Impact	• This is the largest digital bond issuance in the world to date. The transaction is positioned as a major scaling milestone for Hong Kong's digital bond market. It is their largest digital bond issuance to date by subscription, with broader investor access and integration of tokenised central bank money. • The offering preserved a bridge to legacy infrastructure while deploying a digitally native issuance process via HSBC Orion, reflecting a pragmatic "hybrid" approach that eases market access for traditional institutional investors. • Public releases highlight the integration of tokenised central bank money and linkages to major settlement infrastructures (CMU with Euroclear / Clearstream access). This demonstrates an ambition to explore the benefits of atomic settlement and cross-infrastructure interoperability.

Investment Tokens

Defining an Investment Token

An 'investment token' is a token, not being a securities token, that represents a fractional share of a financial interest in a reference asset.24 Investment tokens grant a right to receive financial interests linked to the underlying reference asset, without conferring on the holders any direct ownership or utilisation rights in such reference asset itself. Such financial interests could include rights to a share of revenues, royalties, appreciation in asset value, a fixed return or other non-cash economic benefits derived from the reference asset. Typical applications include tokenisation of certain economic benefits linked to real estate, commodities and intellectual property.

Tokenisation and DLT are most compelling where the reference assets are illiquid, operationally intensive, fragmented across different systems/ registries, or constrained by large denominations and/or bespoke documentation.[25] In this regard, real estate, commodities and intellectual property fit multiple of the aforementioned traits, and shifting registry functions for such assets to a programmable platform will increase efficiency, as isolated administrative and back-end processes can be consolidated and automated to a large extent. Furthermore, tokenisation of such assets by issuing investment tokens can enhance investment opportunities and access to these assets. In this context, investment tokens will function similarly to units of an investment scheme, where the issuers of investment tokens pool investor funds to provide returns arising from a promoter-managed scheme – the governing document for which will, in substance, be proximate to 'investment contracts'.

Investment tokens can be structured to provide investors with exposure to cash flows or economic benefits derived from the underlying asset, without conferring any direct ownership or utilisation rights in the asset itself. The basic premise of the investment plan will be for investors to buy into schemes centred on acquiring/ operating commercial properties, physical commodities and/or intellectual property, in exchange for a proportionate entitlement to cash flows (such as, periodic rental income or license fees in the case of real estate; storage yields, lending/ lease rates or structured spread income for physical commodities; and royalty payments or license fees for intellectual property) generated from the underlying asset.

Investment products that enable fractional participation in rental income streams are presently offered in India[26] and investment tokens for real estate can be similarly structured. Further, gold and silver exchange-traded funds are existing investment schemes in India[27] that are comparable to the structure proposed for investment tokens for commodities.

Overlap with Existing Regulated Securities

We refer to the discussions in sections titled 'Tokens as units of a CIS' and 'Tokens as units of a pooled investment vehicle' of Chapter 2 above. An investment token has similarities with multiple regulated structures – including a REIT, exchange-traded funds, a CIS, and other pooled investment vehicles – in that investor contributions are pooled, managed by an issuer or manager, and represented by fractionalised units (tokens) which entitle investors to a proportionate share of returns from the underlying assets or securities.

Despite these commonalities, there will be certain token issuance structures that do not squarely fit under the enumerated categories (such as REITs, ETFs, or CIS). Such tokens may then be classified as an investment token, provided that they fulfil the above tests regarding providing a financial interest without affording direct ownership.

Consider REITs for example – the REIT Regulations 2014 define REITs as "*a person that pools rupees fifty crores or more for the purpose of issuing units to at least two hundred investors so as to acquire and manage real estate assets or properties, that would entitle such investors to receive the income generated therefrom without giving them day-to-day control over the management and operation of such real estate assets and properties.*"28 More specifically, a REIT with an asset size between INR 50 crores and INR 500 crores, with a minimum of 200 investors, that pools money from investors under one or more schemes, is classified

24 Definition borrowed with modifications from FSB. In FSB's taxonomy, investment tokens fall under 'non-financial (physical) assets'. Financial Stability Board, The Financial Stability Implications of Tokenisation (22 October 2024) Table 1, 5.

25 World Economic Forum (WEF), Asset Tokenization in Financial Markets: The Next Generation of Value Exchange (2025).

26 As an example, AltDRX offers a digital investment product through which investors can earn returns from rental income streams from curated commercial real estate assets. Investors receive units representing rights to periodic rental distributions, without acquiring legal ownership or direct control over the underlying property. For more details, refer to AtlDRX's website available at: https://altdrx.com/.

27 National Institute of Securities Markets, 'Understanding Gold ETFs and Silver ETFs'.

28 REIT Regulations 2014, regulation 2(1)(zm). This definition was substituted by the SEBI (Real Estate Investment Trusts) (Amendment) Regulations, 2024 ("**REIT Regulations 2024 Amendment**") w.e.f. March 8, 2024. Prior to substitution, the definition read as follows: "REIT shall mean a trust registered as such under these regulations". The REIT Regulations 2024 Amendment added the concept of SM REITs into the REIT Regulations 2014 and required their mandatory registration with SEBI.

as an 'SM REIT'.29 Here, a 'unit' means a beneficial interest of the REIT.30 An entity falls outside the purview of the REIT Regulations 2014 if the number of investors on the platform is fewer than 200 or if the value of assets being managed is less than INR 50 crores. Either condition being fulfilled is sufficient.31 While defining these thresholds in the definition of an SM REIT, SEBI took into consideration that there is no wide public interest or systemic risk below these thresholds.32 A token issuance that involves fewer investors or smaller real estate assets under its management could sit outside SEBI's definition of a REIT. Such a token could therefore be classified as an investment token, rather than a securities token as per the classification set out in this paper.

Investment tokens also share similarities with investment contracts (which are classified as securities33) in the United States and the parallel concept of CIS in the Indian context. An investment token issuance will typically fulfil the 'investment of money' and the 'in a common enterprise' limbs of the classical 'Howey Test'34 to assess if a particular transaction should be classified as an investment contract.

In India, a 'collective investment scheme'35 is defined under Section 11AA (2) of the SEBI Act. We refer to the discussions in the section titled 'Tokens as units of a CIS' of Chapter 2 above. Importantly, the four-limb CIS test in Section 11AA(2) of the SEBI Act applies regardless of the corpus. That said, any pooling of funds exceeding INR 100 crores, which is not registered with SEBI and does not fall under Identified Exceptions, is deemed to be a CIS.36 Section 11AA (2) of the SEBI Act is not restricted to any particular commercial activity. The definition only seeks to ascertain and identify any scheme or arrangement, irrespective of the nature of business, which attracts investors to invest their funds at the instance of someone else who comes forward to promote such scheme or arrangement in any field, and such scheme or arrangement provides for the various consequences to result therefrom.37

A regulated CIS is a trust-based arrangement that gathers funds from investors (typically those with smaller investing capacity), and the entire scheme operates under the regulatory framework established by SEBI. The CIS structure consists of a managing body and a separate trustee: the 'collective investment management company' ("**CIMC**", which must be a company incorporated under Indian law) issues the units to the investors and is responsible for managing the funds and operating the CIS; and the trustee (which must be registered with SEBI in this regard) holds the CIS's assets in trust for the benefit of the investors.[38] From an Indian regulatory perspective, where investor funds are pooled and returns are generated through the efforts of a third party, the structure closely aligns with the characteristics of a CIS.

A CIS also requires management on behalf of investors where investors have no option but to relinquish control.[39] Thus, an investment token that provides token holders with some control over the management (but not the ownership) or day-to-day control of the underlying reference asset, pooling an amount of less than INR 100 crores, could potentially fall outside the scope of a CIS. The Committee on Collective Investment Schemes (also known as the "**Dave Committee**"), which formulated the definition for CIS, had also observed that certain arrangements involving pooling of funds but offering fixed/ pre-determined returns independent of the profits accrued from the venture are excluded from the securities perimeter and, in some cases are treated as

29 REIT Regulations 2014, regulation 26H(c) and regulation 26P(2).

30 REIT Regulations 2014, regulation 2(1)(zx).

31 See SEBI, 'Board Meeting – Memorandum' para 3.1.14, 3.

32See SEBI 'Board Meeting – Memorandum' para 3.1.14, 3.

33 An investment contract is a security pursuant to Section 2(1) the (United States) Securities Act, 1933. According to the Howey Test, an investment contract exists when there is "an investment of money in a common enterprise with a reasonable expectation of profits to be derived from the efforts of others". See SEC v W.J. Howey Co., 328 U.S. 293 (1946).

34 See SEC v W.J. Howey Co., 328 U.S. 293 (1946). Also, SEBI in Securities and Exchange Board of India (SEBI), Final Report of the Dr S. A. Dave Committee on Collective Investment Schemes (5 April 1999) https://www.sebi.gov.in/reports/reports/apr-1999/dr-s-a-dave-committee-final-report-on-collective-investment-schemes_23442.html accessed 30 October 2025, 11 ("**Dave Committee Report**") has noted that the Howey's Test lays down that. contracts can be construed to be securities if they cumulatively satisfy the following characteristics, irrespective of the legal terminology in which these contracts may be clothed: (a) The contract denotes an interest or participation in any profit sharing agreement. (b) The Management of the arrangement is by a separate entity. (c) There is an absence of day to day control on the arrangement by the investors. (d) The resources of the investors, in whatever form, are pooled. Further, while finalising the definition of Collective Investment Schemes, the committee, therefore, adopted the above characteristics, which are also in consonance with the norms adopted internationally.

35 A 'Collective investment scheme' is defined under Section 11AA(2) of the SEBI Act as follows: "Any scheme or arrangement made or offered by any person under which,— (i) the contributions, or payments made by the investors, by whatever name called, are pooled and utilized for the purposes of the scheme or arrangement; (ii) the contributions or payments are made to such scheme or arrangement by the investors with a view to receive profits, income, produce or property, whether movable or immovable, from such scheme or arrangement; (iii) the property, contribution or investment forming part of scheme or arrangement, whether identifiable or not, is managed on behalf of the investors; and (iv) the investors do not have day-to-day control over the management and operation of the scheme or arrangement…."

36 SEBI Act, Section 11AA(2A).

37 P.G.F Limited v Union of India, MANU/SC/0247/2013, paragraph 35.

38 CIS Regulations 1999.

39 SEBI, Interim Order in the matter of Growpital Platform WTM/AS/WRO/WRO/29991/2023-24 (29 January 2024); SEBI, Confirmatory Order in the matter of Growpital Platform WTM/AS/WRO/WRO/30296/2024-25 (26 April 2024).

deposits[40], which to certain extent[41], are already covered under the list of Identified Exceptions. That said, a fixed-return promise does not by itself exclude CIS characterisation if the conditions in Section 11AA(2) are met; and a 'deposit' character may also bring separate constraints under the Companies Act and other financial sector laws. For instance, if tokens are issued to investors entitling them to a fixed royalty payment from the contractual licensing of a particular intellectual property, pooling an amount lesser than INR 100 crores, without any direct ownership in the intellectual property and irrespective of whether the intellectual property actually generates profits or not, it may possibly fall under this exception, subject to non-fulfilment of other conditions prescribed for a CIS under Section 11AA(2) of the SEBI Act. Such royalty tokens may be classified as an investment token. However, once the definition/universe of investment tokens is finalised, it would be prudent to formalise it under the list of Identified Exceptions to keep it outside the purview of CIS on account of reasons cited below.

Regulatory amendments needed

Against this regulatory backdrop, it is relevant to reiterate that the concept of CIS was introduced in India as a response to large-scale investor frauds in the early 1990s, particularly those involving plantation and agro-based schemes. These schemes had attracted funds from retail investors under promises of assured returns linked to agricultural or plantation projects, but were, in substance, ponzi-like structures lacking transparency, investor protection and regulatory oversight. With a view to address these concerns, the definition of CIS was inserted in the SEBI Act and was brought within the jurisdiction of the securities market regulator. The regulatory intent behind the CIS framework was therefore protective rather than facilitative, i.e., to curb fraudulent mobilisation of funds rather than to promote a new class of investment vehicles.[42]

As highlighted in Chapter 2, CIS Regulation 1999 imposes onerous compliance requirements which *inter alia* include the following:
(a) Investment restrictions: A CIS cannot be launched for the purpose of investing in securities.
(b) Mandatory listing: Units of a CIS must be listed on a recognised stock exchange.

In addition to the above, the eligibility qualifications under the CIS Regulations 1999 that are required to be met by entities looking to launch CIS present high barriers to entry (with mandates such as specified net-worth of the CIMC, compulsory credit rating of each CIS and appraisal, closed-ended design, listing and extensive pre- and post-launch controls).[43] Added to this are the stringent scheme conditions, expense and fee caps, and the heavy disclosure and audit requirements. In practice, these high eligibility qualifications, despite being prudent in intent, have resulted in a high bar for new entrants and have not yielded a vibrant, compliant CIS market.

The CIS Regulations 1999 have, in practice, operated more as a prohibitory framework than an enabling one. Since their inception over two decades ago, not a single entity has obtained registration as a collective investment scheme under them to date[44]. This outcome is not accidental but reflective of the rigidity and impracticality inherent in the construct of the CIS framework.

Further, all enforcement actions initiated by SEBI to date in relation to collective investment activities have uniformly proceeded on the premise that any pooling arrangement which satisfies the definitional test of a CIS under Section 11AA of the SEBI Act is, absent registration, per se unlawful. Notably, SEBI has not, in any of these matters, permitted regularisation or registration of such

40 Securities and Exchange Board of India (SEBI), Final Report of the Dr S. A. Dave Committee on Collective Investment Schemes (5 April 1999) https://www.sebi.gov.in/reports/reports/apr-1999/dr-s-a-dave-committee-final-report-on-collective-investment-schemes_23442.html accessed 30 October 2025, 11. The Dave Committee Report also noted that these fixed return schemes have been previously classified as deposits in some instances.

41 Any scheme or arrangement (i) under which deposits are accepted by non-banking financial companies as defined in clause (f) of section 45-I of the Reserve Bank of India Act, 1934; (ii) under which deposits are accepted under section 58A of the Companies Act, 1956; and (iii) under which deposits are accepted by a company declared as a Nidhi or a mutual benefit society under section 620A of the Companies Act, 1956.

42 The Dave Committee Report states that: "in the years prior to the Report, while private entrepreneurs been undertaking plantation activities on a commercial scale, it was noticed that the promoters themselves invested a minimal amount in such ventures and sourced a majority of the funds from ordinary investors. Further, it was noticed that large sums of monies had been collected by entities which did not necessarily have sufficient experience in agro based activities. The schemes were typically open ended and the disclosures made to the investors were not adequate to enable informed decisions; and there were high risks associated with these ventures due to the long gestation period involved coupled with crop risks." See also PGF Limited and Ors v Union of India and Ors 2013 INSC 155.

43 Regulation 9 of the CIS Regulations 1999 provides the eligibility conditions for companies applying for authorisation to operate as a collective investment management company ("**CIMC**"). To be eligible for registration as a CIMC, the applicant must be set up as an incorporated company, and its memorandum of association must specify 'managing of CIS' as a main objective. The applicant must demonstrate a 'sound track record' in financial services or the relevant field of the CIS, including at least five years of operations, continuous positive net worth, profitability in three of the past five years, and a minimum net worth of INR 50 crore (raised to INR 100 crore until it records five consecutive years of profit, if profitability conditions are not met). The applicant must be considered fit and proper, with adequate infrastructure, and its directors and key personnel must be persons of integrity and professional competence, free from convictions for economic or securities-related offences. At least half the directors must be independent, one permanent director must represent the trustee, and the company itself cannot serve as trustee of any scheme. Further, neither the applicant nor connected persons should have faced prior refusal of registration or disciplinary action by SEBI. The certificate of registration as a CIMC also outlines specific compliance conditions. See CIS Regulations 1999, regulations 9, 9A,9B and 11.

44 As on the date of this paper, there is no CIMC registered with SEBI. See Securities and Exchange Board of India (SEBI), Registered Collective Investment Management Company (web-page) https://www.sebi.gov.in/sebiweb/other/OtherAction.do?doRecognisedFpi=yes&intmId=36 accessed 30 October 2025.

activities ex post facto; rather, it has consistently directed cessation of the business and refund of monies to investors. This enforcement posture underscores SEBI's view that once an activity falls within the CIS rubric, it is effectively prohibited, given the non-functional nature of the registration pathway.

By contrast, analogous pooled investment frameworks such as those governing MFs, AIFs, REITs and InvITs, have evolved through iterative reform and periodic modernisation, responding to market developments and investor needs. The CIS Regulations, however, have remained largely static, with only sporadic and limited amendments[45], and have never been recalibrated to align with contemporary pooled vehicle standards or modern investment structures.

In this context, it would be both impractical and conceptually inappropriate to subsume emerging products such as investment tokens within the CIS framework. Given that the CIS regime has not evolved into a functional regulatory pathway or a dynamic market for legitimate collective investment products, a more rational policy approach would be to develop a dedicated, fit-for-purpose regime for such investment tokens.

Accordingly, a specific regulatory carve-out excluding investment tokens from the ambit of the CIS Regulations, 1999 (and towards this, the regulator could consider including them under the list of 'Identified Exceptions') would be a prudent policy consideration.

Instead, a lighter, tailored framework inspired by CIS principles but adapted to the digital token environment can be set up, which preserves core investor safeguards through targeted disclosure, transparent valuation, and orderly redemption mechanisms, while dispensing with the more onerous requirements pertaining to investment restrictions, mandatory listing, governance, net worth, and eligibility conditions applicable to conventional CIS vehicles.

The framework for investment tokens must also maintain the requirement for a trustee/ custodian trustee, and depending on the programmability and interoperability design of the platform, trustees' can be permitted to participate on the platform directly as a light node (with limited access relevant to monitoring, which can extend to actions such as marking events for the investors' or regulators' attention, etc.). Alternatively, where direct participation is not suitable, read-only access limited to the platform's registry data can be granted to trustees, with auditable integration between the platform and the trustee's off-chain system for data sharing or executing actions, if needed or preferred. This approach for investment tokens will allow the regulator to calibrate oversight proportionately to the risks involved.

Advantages

(a) **Fractional access without title fragmentation:** Investors can buy small portions of high-value assets, such as real estate or commodities, and receive a share of the income they generate. This means people can invest in assets that would otherwise be out of reach, without having to deal with the complications of co-owning or managing the asset directly. The legal title and control remain with a professional manager or entity, which reduces the risk of disputes and simplifies administration.

(b) **Programmability of complex waterfalls:** Smart contracts have the capacity to automate various actions, ranging from token issuance (and related processes) to reserve maintenance, covenant checks and income distribution, thereby reducing operational errors and delays.

(c) **Shared, auditable record-keeping:** Unifying registry functions into a programmable platform, which evidences issuance, holdings, transfers, encumbrances and distribution events, will provide a clear and auditable history of all activity, making it easier to resolve disputes, verify entitlements, and enable regulators to monitor the system in real time.

(d) **Composability and collateral mobility:** Given that investment tokens are issued in standardised digital formats, they can be easily used as collateral for loans or other financial transactions. The tokens can be pledged, transferred or reused across different platforms, which increases their utility and helps investors manage their liquidity more efficiently.

(e) **Compliance and service-by-design:** The rules for who can buy, hold or transfer investment tokens and/or actions that must be executed based on trigger events, can be built directly into the tokens and the programmable platform, which are then automatically enforced by the platform, reducing the risk of non-compliance/ delays and improving market integrity.

45 Refer to the SEBI website available at: Securities and Exchange Board of India, 'Regulations' (Web-page) https://www.sebi.gov.in/sebiweb/home/HomeAction.do?doListingLegal=yes&sid=1&ssid=3&smid=0 accessed 30 October 2025.

Implementation Risk and Considerations

A legal framework for investment tokens must consider and seek to resolve for the following implementation risks:

(a) **Legal recognition and dual-record challenges**: In many cases, the official record of ownership or rights in assets like land or intellectual property is maintained in government or statutory registries, not on the blockchain. This means that even if a token is transferred on-chain, it may not be legally recognised unless the change is also recorded off-chain. As a result, disputes may still need to be resolved using traditional evidence, which can undermine the efficiency and automation benefits of tokenisation. A digital infrastructure layer that embeds the on-chain processes of an investment token will be a key enabler for the development of investment tokens.

(b) **Basis risk and dual-liquidity pools:** The price of investment tokens on secondary markets may not always match the value of the underlying cash flows, due to factors like platform design, the reputation of the issuer, or differences in trading hours. This can lead to situations where the liquidity of the token market is out of sync with the actual cash flows from the asset, creating risks for both investors and issuers.

(c) **Custody risks:** If the underlying asset or right is not properly secured or assigned (for example, if receivables are already pledged elsewhere), the Investment Tokens may not be fully backed. The role of the trustee is critical, and any misconduct or insolvency could put investors at risk. Strong governance and bankruptcy-remote structures are essential to mitigate these risks.

(d) **Smart-contract rigidity and upgrade governance:** Once deployed, smart contracts are difficult to change. This means that errors or changes in regulation can be difficult to address, and emergency controls or upgrade paths may lead to a concentration of information/ discretion in the hands of a few parties. Transparent change control, regular audits, and clear disclosure are necessary to maintain trust and flexibility.

(e) **Interoperability:** If different external systems use incompatible standards, liquidity can become fragmented, making it harder to buy or sell Investment Tokens and discover fair prices. Furthermore, integration solutions could introduce new technical and security risks, whereas delays in adopting common standards can hinder the growth and utility of the market.

(f) **Privacy and data-governance:** Striking the right balance between transparency and confidentiality is challenging. Excessive disclosure can violate privacy laws or reveal sensitive business information, while insufficient disclosure can undermine trust and hinder price discovery. Storing personal data on-chain also raises concerns about data protection and the right to erasure.

Case Study 4: Alt DRX – Tokenised housing assets investment model[46]

Alt DRX is a digital real estate marketplace designed to democratise access to Indian residential property by enabling users to buy and sell tokenised property interests as small as one square foot. The platform leverages algorithmic daily pricing, instant settlements, and blockchain-based ledgers to enhance transparency, liquidity, and accessibility.

Figure 12 Case Study 4: Overview of Alt DRX's investment products

Overview

Alt DRX is a digital real estate marketplace designed to democratise access to Indian residential properties by enabling KYC-whitelisted resident Indian users to buy and sell tokenised property interests as small as one square foot. The platform leverages algorithmic daily pricing, instant settlements, and blockchain-based ledgers to enhance transparency, liquidity, and accessibility. Alt DRX also offers index-like investment opportunities, where investors can participate in curated property portfolios representing specific cities and asset classes (e.g., Bangalore Rental housing, or Kerela Holiday Homes).

Legal Structures

- **The 'Innovative yet cautious' Approach:** Alt DRX is India's only live Housing Asset Tokenisation Marketplace, and has a focus on structuring its product offering with a 'Regulations and Governance first' approach:
  - Alt DRX was one of the first Real Estate Tokenisation Platforms to be admitted into IFSCA's Innovation Sandbox in GIFT City, Gujarat. They are awaiting final consent to commence Limited User Testing for Tokenising Offshore Residential Properties
  - Alt DRX has been recently licensed by Qatar Financial Centre Authority as a "Token Service Provider", allowing it to generate, validate, Custody and Transfer asset-backed tokens. It's the first entity to be licensed in Qatar for asset tokenisation and the very first Indian FinTech to be licensed for asset tokenisation at any place globally.
  - Alt DRX has a strong and eminent governance body to guide its founding team. The Advisory Board is chaired by Mr GN Bajpai, ex-Chairman of SEBI, and includes Mr Richard Rekhy, ex-CEO of KPMG India, Mr Ganesh Balasubramanian, ex-Chairman of HSBC Technologies and Mr Jitender Balakrishnan, ex-DMD of IDBI Bank.
  - The platform focuses only on 'Ready2Occupy Housing Assets' across various India cities, thereby nullifying the primary performance risk of real estate, when it is under construction.
  - All User funds are retained in an escrow account with a SEBI-regulated entity acting as the escrow agent
  - Assets are held in a liquidation-agnostic, ring-fenced SPVs, away from the operating entity (Alt DRX). Neither do these SPVs carry any bank leverage.
  - Only INR is used as settlement currency. Cryptocurrencies are not allowed.
  - Only 80% of the value of the real estate is tokenised.

- **Eligibility:** Only KYC-whitelisted Indian users may participate. Tokens are not transferable to foreign persons, in line with India's exchange control regulations.

Tokenisation Technology Architecture

- The core tokenisation technology architecture used by Alt DRX is a "*hybrid, permissioned centralised platform with blockchain finality*". This is similar to the architecture used by regulated financial institutions around the world that are tokenising assets that are recorded in its CBS / balance sheet, by mirroring them onto a tokenised ledger.
- Alt DRX combines a centralised rule-based platform for transaction processing, with blockchain for finality of post-transaction ledger records, thus mitigating the risk of a single point of failure. The centralised system is efficient in transaction execution, powers regulatory rule application, while blockchain ensures immutability, transparency, and compliance of transactional ledgers. Further, since the tokens are neither minted on a blockchain nor transacted on a permissionless blockchain, the risk of theft of digital assets or loss of control over wallets is completely nullified. This hybrid approach balances efficiency with security, creating a robust and scalable infrastructure for tokenised markets

Taxes

- **Stamp Duty**: Alt.SQFT are possibly India's only stamp duty paid token, with every "Token Transfer Agreement" executed between users being stamped as per the Movable Properties Act.
- **Virtual Digital Asset (VDA)**: While the Income Tax definition of VDA was primarily brought in to tax cryptocurrencies, the wide definition language has potentially bracketed even asset-backed tokens like those in the Alt DRX use case, under the VDA ambit. Thus, the Alt DRX platform fulfils the TDS obligations for Token Trades and reports the trade value by its users under the VDA provision of the Income Tax Act. This compliance, however lowers the tax efficiency of the instrument.

46 Alt DRX, Terms of Use, https://altdrx.com/terms-and-conditions; publicly available information documents for the Hyderabad Prime Land Investment Opportunity (https://www.scribd.com/embeds/866823865/content), Bangalore Rental Housing Investment Opportunity (https://www.scribd.com/embeds/866822171/content), Bangalore Prime Land Investment Opportunity (https://www.scribd.com/embeds/866822165/content) and Goa Holiday Homes Investment Opportunity (https://www.scribd.com/embeds/866823866/content).

Ownership Tokens

Defining Ownership Tokens

Ownership Tokens are digital instruments (not being payments tokens, securities tokens or investment tokens) that represent proprietary ownership or utilisation rights in a pre-identified reference asset, such as real estate, commodities, intellectual property, art or other collectables. These tokens are a subset of asset tokens, where the token itself is the operative medium for evidencing, transferring, and enforcing fractional, undivided interests in the underlying asset on the programmable platform. The core conceptual distinction of ownership tokens lies in their ability to provide direct, programmable, and transferable ownership or defined utilisation rights, as opposed to mere economic exposure.[47]

Ownership in ownership tokens is typically encoded in smart contracts, which define the pro rata proprietary rights of token holders.[48] Transfers of tokens on the DLT platform are intended to correspond to transfers of legal or beneficial ownership in the reference asset, subject to the alignment of on-chain and off-chain legal frameworks. Custody is a central element: the reference asset must be immobilised with a trusted custodian or trustee to prevent duplicative issuance and to ensure that tokens remain constantly and verifiably backed by the underlying asset.[49]

Some key applications include:

(a) Real Estate: Enables fractional ownership of high-value, illiquid assets such as commercial buildings or land parcels, facilitating automated rental income distribution and secondary market trading on DLT platforms.
(b) Commodities: Allows for direct, fractionalised claims over physical commodities or certified intangible assets, supporting global 24/7 trading and composability with other financial products.
(c) IPR: Permits the tokenisation of patents, copyrights, and trademarks, enabling fractional capitalisation and programmable royalty distribution, and providing a mechanism for collaborative ownership and monetisation of intangible assets.

Regulatory Uncertainty

The regulatory landscape for ownership tokens remains unsettled across most jurisdictions. While DLT platforms offer the technical means to record and transfer ownership, the legal effect of such transfers on the underlying reference asset is often ambiguous. For example, in Switzerland, the Distributed Ledger Technology (DLT) Act 2021 clarifies the legal status of certain digital assets, but enforceability for real estate and IPR still requires registry alignment.[50] In Singapore, the regulatory regime distinguishes between tokens referencing securities and other asset classes, but the legal recognition of token transfers on the underlying title is still evolving.

This uncertainty is compounded by the lack of harmonised standards for custody, valuation, and redemption, as well as the potential for tokens to be reclassified as securities or CISs. The absence of clear regulatory guidance increases legal risk for issuers and investors and may inhibit the broader adoption of ownership tokens.

Aligning on-platform and off-platform interests

A significant grey area in the regulation and practice of ownership tokens concerns the recognition and registration of fractional ownership. For instance, many land registries only permit a single registered owner, making it difficult to reflect the fractional interests represented by tokens. This disconnect between on-chain records and off-chain legal registries can result in a lack of enforceability, particularly in insolvency or dispute scenarios.

Similarly, in the context of intellectual property rights, only the first owner or registrant is typically recognised in official records, and subsequent transfers or fractionalisation via tokens may not be legally acknowledged. These challenges highlight the necessity for regulatory certainty and the development of legal frameworks that can accommodate the unique features of DLT-based ownership, ensuring that tokenised rights are recognised and enforceable in the real world.

47 Itai Agur and others, Tokenization and Financial Market Inefficiencies (IMF Fintech Note 2025/001, 2025) 1–2.

48 Clifford Chance, Security Token Offerings—A European perspective on regulation (2020) accessed 25 March 2025.

49 OECD, The Tokenisation of Assets and Potential Implications for Financial Markets (OECD Blockchain Policy Series, 2020) 11.

50 FINMA is Switzerland's independent financial-markets regulator. Its mandate is to supervise banks, insurance companies, financial institutions, collective investment schemes, and their asset managers and fund management companies. It also regulates insurance intermediaries. It is charged with protecting creditors, investors and policyholders. Swiss Financial Market Supervisory Authority (FINMA), 'An overview of FINMA'.

Figure 13 Key advantages and risks of ownership tokens for each use case.

Asset Class	Ownership Recognition	Fully Centralised	Private Permissioned	Public Permissioned	Public Permissionless
Real Estate (Land, Immovable Property)	Tokens may represent undivided co-ownership or interests in an SPV/trust holding title. Most land registries do not natively record fractional or digitally native interests, creating enforceability gaps between on-platform transfers and off-platform title.	**Advantage:** High compliance and auditability; enhanced transparency through digitised title records and transaction history.[51] **Risk Consideration:** Centralisation risk; legal uncertainty due to lack of registry integration for fractional ownership.[52]	**Advantage:** Controlled participation with strong governance;[53] improved transparency and record integrity for title/encumbrance tracking.[54] **Risk Consideration:** Risk of reclassification as a collective investment scheme, triggering additional compliance.[55] Legal uncertainty where registries do not recognise fractional/digital entries;[56] onboarding and integration costs.[57]	**Advantage:** Automated income distribution and streamlined management via smart contracts.[58] Wider participant reach under governance, supporting secondary liquidity and compliant access windows.[59] **Risk Consideration:** High verification and due diligence costs for title and encumbrances. Cross-border recognition and enforcement challenges; fragmentation across jurisdictions.[60]	**Advantage:** Broadest market access and potential 24/7 liquidity; composability with other digital assets.[61] **Risk Consideration:** Regulatory arbitrage concerns; higher legal uncertainty regarding settlement finality compared to land registries; investor protection controls rely on overlays.[62]
Commodities (Gold, Art, Collectables, Crude Oil, Coffee, Carbon Credits)	Tokens are typically backed by warehouse receipts or vault certificates, but legal title may still reside with the custodian, and enforceability depends on the legal framework.	**Advantage:** Improved provenance and auditability through shared, immutable records. Strong control over custody attestations, reserve audits, and segregation; efficient operational workflows.[63] **Risk Consideration:** Concentration risk at the custodian/operator; reliance on internal control.	**Advantage:** Provenance, auditability, and inventory controls via shared records; tailored access and compliance. **Risk Consideration:** Residual custody concentration and the need for robust segregation and verification.	**Advantage:** Lower transaction costs and operational efficiencies. **Risk Consideration:** Limited regulatory oversight and potential for misrepresentation of backing.	**Advantage:** Global access, composability, and continuous trading; flexible redemption logic (cash or in-kind) can be embedded. **Risk Consideration:** Price volatility and multi-venue dispersion; reliance on third-party attestations/oracles for reserve and registry data.
Intellectual Property Rights (IPR),	IP registries typically recognise the initial owner/registrant. Fractional or on-platform	**Advantage:** Programmable royalty distribution, licensing controls, and	**Advantage:** Enterprise-grade controls for licensing and revenue sharing;	**Advantage:** Wider capital formation for research and development and	**Advantage:** Lower administrative overhead for distribution and rights

51 OECD, Tokenisation of Assets and Distributed Ledger Technologies in Financial Markets (OECD Business and Finance Policy Papers No 75, January 2025) 20.
52 Ibid 6,12, and 20.
53 Ibid 18.
54 Ibid 8.
55 Ibid 11-12.
56 Ibid 20.
57 Ibid 12.
58 Ibid 8.
59 Ibid.
60 Ibid 20.
61 Ibid 18-20.
62 Ibid 18.
63 Ibid 8 17, and 18.

Asset Class	Ownership Recognition	Fully Centralised	Private Permissioned	Public Permissioned	Public Permissionless
Brand Recognition, and Goodwill	co-ownership is often not recorded in official registries, limiting the enforceability of tokenised transfers unless aligned through assignments, co-ownership filings, or trustee/nominee structures.	compliance reporting; strong audit trails. **Risk Consideration:** On-platform transfers may not update the official registry title; centralised operator dependency.	curated counterparties. **Risk Consideration:** Continuing uncertainty on recognition of on-platform transfers in registry systems; cross-jurisdictional variance.	collaborative innovation under governance; collateralisation aided by transparent revenue histories. **Risk Consideration:** Complex valuation and periodic reassessment; jurisdictional conflicts on enforcement.	management; rapid monetisation pathways. **Risk Consideration:** Technology and smart-contract risks (misallocation, exploitation); weakest linkage to the official registry title.
Comparative Insights	Real estate and commodities benefit from established custody and valuation practices but face greater friction in registry integration and recognition of fractional or digitally native ownership. Intellectual property tokenisation leverages programmability (royalties/licensing) and potential collateralisation, but is constrained by limited legal frameworks for recognising fractional or secondary ownership in official registries.	Real estate faces enforceability gaps due to a lack of registry integration. Commodities gain from custody and valuation standards but retain custodian concentration risk. Intellectual property faces dependency on registries for recognition.	Private permissioned platforms allow controlled participation and tailored compliance but raise issues of legal recognition (especially in real estate and intellectual property) and risks of reclassification as collective investment schemes.	Public permissioned platforms enable secondary liquidity, governance-based access, and collaborative capital formation but create complexity in enforcement, cross-border recognition, and valuation reassessment.	Public permissionless platforms maximise market access, liquidity, and composability but have the weakest enforceability in relation to official registries, and greater reliance on overlays, third-party oracles, and investor protection mechanisms.

Real-estate use case

Ownership tokens in real estate provide direct ownership or defined utilisation rights in land or immovable property. These tokens can be structured in two principal ways: (i) as direct undivided co-ownership interests in the property itself, or (ii) as indirect interests through tokens representing shares in a special purpose vehicle (SPV), trust, or nominee entity that holds legal title to the property. The latter approach is often used to facilitate compliance with local property laws and to streamline governance and management. Tokens may also embed programmatic rights, such as the ability to redeem a certain number of tokens for a specific sub-unit or to receive a pro rata share of rental income.

Advantages

(a) **High suitability for tokenisation**: Real estate is typically high-value and illiquid, making it an ideal candidate for fractionalisation. In jurisdictions with reliable and final title records, the primary friction is in transactions (high legal costs, delays, intermediaries). Here, tokenisation can add efficiency: fractional ownership, faster transfer, programmable settlement. Tokenisation lowers the minimum investment threshold, broadening access to a wider pool of investors, and offers enhanced visibility, transparency, and traceability.[64]

(b) **Enhanced transparency:** Digitisation of title records, leases, and due diligence documents improves transparency and reduces information asymmetry for investors.

(c) **Automated income distribution**: Smart contracts can automate the distribution of rental income or other cash flows, reducing administrative overhead and ensuring timely payments.

(d) **Improved liquidity**: Secondary trading of tokens on regulated platforms can provide liquidity for traditionally illiquid assets.

64 David Botchie and others, 'A transaction cost perspective on blockchain governance in global value chains' Strategic Change 31(1) 75–87 https://doi.org/10.1002/jsc.2487.

Implementation Risks and Considerations

A legal framework for ownership tokens must consider and seek to resolve for the following implementation challenges:

(a) **Legal and registry challenges**: The effect of on-chain transfers on off-chain legal title is often unsettled, especially in jurisdictions with presumptive titling or fragmented land registries. Statutory or procedural updates may be required to ensure legal certainty.

(b) **Regulatory complexity**: Depending on the structure, real estate tokens may be classified as securities or CISs, triggering additional compliance requirements (as seen in Swiss and Singaporean practice). A clear token taxonomy will help address this risk.

(c) **Valuation and localisation**: Real estate values are highly localised and subject to regulatory overlays, requiring regular independent appraisals and robust governance.

(d) **High verification costs & locking-in of errors**: Tokenising land carries high verification and networking costs.[65] Verifying titles and resolving disputes can be costly, especially in markets with poor land records. The immutability of the underlying programmable platforms adds another layer of complexity. While tokenisation is effective for resolving transaction frictions in jurisdictions with reliable and final title records, in jurisdictions where the title itself is uncertain (e.g., disputed ownership, unclear registries, corruption, or missing records), tokenisation doesn't address the underlying problem. Before putting the title "on" the platform, an independent legal verification of the title is required, increasing costs. The costs of verifying title and contesting title, before the blockchain records the title as final, could be prohibitive.[66] If the on-chain record is built on a shaky foundation, it only locks in errors and exacerbates disputes.[67]

Commodities (gold, art, collectables, crude oil, coffee, carbon credits)

Ownership tokens in commodities provide direct, fractionalised claims over physical units or certified intangible assets. Tokenising commodities involves converting the ownership rights in traditional physical, fungible, market-traded commodities – like vaulted bullion (such as gold[68]), custodied art and collectables (with provenance and authenticity controls), warehouse receipts for fungible commodities (oil[69], grains, coffee), or certified carbon credits held in registries[70] – into digital tokens on a blockchain network. The tokens may be fungible (for standardised commodities) or non-fungible (for unique items like artwork or rare collectables), and are typically backed by daily attestations, insurance, and robust custody arrangements. These are issued directly against a redeemable commodity owned by the commodity owners, not by a sponsor or algorithm.

Advantages

(a) **Broader market access**: Tokenisation enables fractional ownership of high-value commodities, allowing retail and institutional investors to participate in markets previously limited by high entry barriers.

(b) **Enhanced transparency and provenance**: Blockchain-based audit trails, embedded authentication technologies (such as chips or serial numbers), and third-party audits improve trust and reduce the risk of counterfeiting or double-spending.

(c) **Liquidity and delivery flexibility**: Tokens can be traded globally 24/7, and may offer options for cash or in-kind redemption, as well as composability for use in structured products or staking.

(d) **Oversight by design**: In addition to the custody structure, audit and authentication technology can be built into the asset reserve, like Carat's electronic chips[71].

(e) **Provenance**: For art or collectables, provenance is an essential factor in determining the monetary value of the collectables or artwork. Provenance refers to the chain of ownership or the identity of an artwork, which relies on documents that can be difficult to share or verify. Hence, through the use of a programmable platform network, the identity and history of the item can be uploaded as a "provenance" record.

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65 Christian Catalini and Joshua S Gans, 'Some simple economics of the blockchain' (2020) 63(7) Communications of the ACM 80–90; National Bureau of Economic Research, Working Paper No 22952.

66 Edoardo D. Martino and others, 'The Social Cost of Blockchain: Externalities, Allocation of Property Rights, and the Role of the Law' (ILE Working Paper Series 80, University of Hamburg Institute of Law and Economics, 2024) accessed 25 September 2025.

67 Edoardo D. Martino and others, 'The Social Cost of Blockchain: Externalities, Allocation of Property Rights, and the Role of the Law' (ILE Working Paper Series 80, University of Hamburg Institute of Law and Economics, 2024) accessed 25 March 2025.

68 Pax Gold token ("**PAXG**") is a regulated digital token issued by Paxos Trust Company, each unit representing one fine troy ounce of London Bullion Market Association ("**LBMA**") Good Delivery gold, custodied in LBMA vaults. Built on Ethereum as an ERC-20 token, PAXG offers the auditability of blockchain and the trust associated with allocated physical gold, providing investors with fractional ownership (minimum trade size of 0.01 oz), zero custody fees, and flexible redemption options (including gold bars, unallocated gold, or fiat). Its trust structure ensures bankruptcy-remote asset protection. Oversight over PAXG is maintained via monthly third-party audits and regulation by the New York State Department of Financial Services. Paxos, 'Pax Gold (PAXG)' accessed 30 September 2025.

69 Elmnts (pronounced "elements") is a tokenised commodities ecosystem aiming to democratise access to oil & gas royalty streams by representing fractional ownership in mineral rights on-chain. Elmnts, https://www.elmnts.io/.

70 In 2020, Moss.Earth, a global climate tech company, had introduced the Moss Carbon Credit ("**MCO2**") token. MCO2 is an ERC-20 instrument representing verified carbon credits sourced primarily from REDD+ rainforest conservation projects. Each token is backed 1:1 by one ton of CO_2 equivalent certified under standards such as Verra, with the corresponding credit held in reserve by Moss. Tokens can be freely traded as digital assets or permanently 'burned' to retire the underlying credit. Gemini, 'Moss.Earth and MCO2: Tokenizing Carbon Credits' (15 October 2023).

71 Diamond Standard, Carats White Paper, https://www.diamondstandard.co/carats/white-paper.

Implementation Risks and Considerations

(a) **Backing and redemption risk**: The credibility of commodity tokens depends on strict segregation and verification of reserves. Failure to maintain adequate backing can undermine investor confidence and token value.
(b) **Market volatility and basis risk**: Commodity prices are subject to external shocks (such as weather or geopolitical events), and multi-venue trading can lead to price discrepancies and increased volatility.
(c) **Regulatory and operational complexity**: Tokenised commodities must comply with commodity, warehousing, customs, and environmental regulations. Moss' MCO2 carbon credits, for example, must fulfil robust registry and methodology standards.

Intellectual Property Rights (IPR), brand recognition, and goodwill

Ownership tokens in the context of IPR, brand recognition, and goodwill confer direct ownership or co-ownership in specific intellectual property assets (such as patents, copyrights, and trademarks) or fractional title in a legal vehicle that owns these assets. Unlike investment tokens, which only provide exposure to royalty streams or licensing revenues, ownership tokens in this category are designed to represent actual proprietary rights. Legal structuring typically involves alignment with IP registries (for assignment or co-ownership), trustee or nominee arrangements to operationalise on-chain transfers, and programmatic governance of licensing and revenue sharing.

Advantages

(a) **Monetisation and capital formation**: Tokenisation enables fractional capitalisation of R&D and IP assets, allowing inventors and companies to raise funds and share ownership with a broader investor base.
(b) **Programmable compliance and revenue distribution**: Smart contracts can automate royalty payments, enforce usage constraints, and manage licensing terms, increasing efficiency and reducing disputes.
(c) **Collateralisation**: Digitally recorded title and transparent revenue histories can support the use of IP portfolios as collateral for secured lending.

Implementation Risks and Considerations

(a) **Valuation and market risk**: Valuing IP assets is inherently complex, often requiring bespoke models and frequent reassessment. Market demand, legal enforceability, and technological relevance all impact value.
(b) **Legal and jurisdictional uncertainty**: The effect of on-chain transfers on off-chain registry title is unsettled in many jurisdictions, and cross-border enforcement of IP rights remains challenging.
(c) **Technology and operational risk**: Smart contract vulnerabilities can lead to misallocation of royalties or rights, and require regular audits and upgradability provisions.

Case Study 5: Diamond Standard Carats – Natural diamond-backed tokens[72]

Launched by Diamond Standard Inc., CARATS are fungible digital tokens issued on Hedera/ Ethereum that represent pro rata ownership in a pooled reserve of "Diamond Standard Commodities" (coins and bars of natural diamonds held in secure custody). The structure relies on a Delaware trust (DS Admin Trust) to hold the underlying assets, with Diamond Standard entities managing issuance and operations, and a Cayman foundation (DAO) providing governance.

Figure 14 Case study 5: Overview of Carat Tokens

Overview:

- **Launched:** September 2018 by Diamond Standard Inc.
- **Structure:** CARATS are cryptographic tokens representing an electronic document of title to fractional shares of specific, fungible Diamond Standard Coins and Bars, each containing certified natural diamonds and a wireless encryption chip for audit and authentication. CARATS are issued by the Carats Smart Contract only upon electronic audit of the chip and are instantly redeemable for Diamond Standard Coins and Bars.
- **Token Issuer:** CARATS are issued by DS Admin Trust (in Delaware) and marketed/ sold by DSAM LLC.
- **Group Structure:** Diamond Standard Inc. (a Delaware Corporation) has two subsidiaries: (a) Diamond Standard Limited (DSL); and (b) Diamond Standard Asset Management LLC (DSAM LLC). Diamond Standard Asset Management LLC is the sponsor of the DS Admin Trust.
- **Reference Asset:** BCC token and BCB token, which in turn represent the Diamond Standard Coins and Bars.
- **Custodian of Reference Asset:** DS Admin Trust
- **Blockchain:** Hashgraph HTS on Hedera; with integration with ERC-20 on Ethereum.
- **Legal form:** Asset-backed digital commodity token
- **Asset class:** Commodities

Legal Structure & Entities

- **Layer 1: The Diamond Standard Coins and Bars, which turn into BCC and BCB tokens.**

(a) Diamond Standard Limited (Bermuda) ("**DSL**"): DSL is the entity that produces the Diamond Standard Coins and Bars. These are physical objects containing natural diamonds, encapsulated with embedded wireless chips, for remote/audit verification. DSL is a licensed 'Digital Assets Business' under the Bermuda Monetary Authority (license number 53943) for issuance, redemption, and sale functions.

(b) Once an approved custodian (one among Brinks, Loomis or Malca-Amit) receives the Diamond Standard Coins and Bars and completes its electronic audit, DSL issues a 'BCC token' for each Diamond Standard Coin or a 'BCB token' for each Diamond Standard Bar.

(c) DS Admin Trust ("**DS Trust**") maintains custody of the underlying Diamond Standard Coin or Bar.

(d) Holders of a BCC or BCB token can redeem them for physical possession of the respective underlying Diamond Standard Coin or Bar.

- **Layer 2: CARATS from BCC and BCB tokens.**

(a) The DS Trust also operates the Carats Smart Contract. CARATS are an electronic document of title, or transferable vault receipt, created by the Carats Smart Contract upon the deposit of a BCC or BCB token by the owner of the token. The DS Trust is sponsored by Diamond Standard Asset Management, LLC ("**DSAM LLC**"). DSAM LLC sells the CARATS and manages certain operations.

(b) CARATS are issued on the Hedera Hashgraph network (and optionally bridged to Ethereum as ERC-20) with up to 18 decimal places of divisibility.

(c) Users can also earn CARATS by staking their BCC or BCB tokens, proportionate to the value of the reference asset staked.

72 Diamond Standard, Carats White Paper, https://www.diamondstandard.co/carats/white-paper.

Conversion Ratios:

- 1 Diamond Standard Bar = 10 Diamond Standard Coins
- 1 Diamond Standard Bar = 1 BCB token (issued by DSL)
- 1 Diamond Standard Coin = 1 BCC token (issued by DSL)
- Initially, 1 Diamond Standard Bar = 1 BCB token (issued by DSL) = 50,000 CARATS (issued by DS Trust)
- Initially, 1 Diamond Standard Coin = 1 BCC token (issued by DSL) = 5,000 CARATS (issued by DS Trust)

Monetisation Model:

- To fund operational costs (custody, vaulting, auditing, insurance, etc.), there is **a built-in "inflation mechanism"**. Periodically, additional Carats are created, thereby gradually increasing the amount of CARAT per unit of BCB or BCC Tokens (i.e., diluting existing CARAT holders). These additional Carats accrue to the DS Trust to cover costs. The white paper states a current rate of ~1.5% per annum of "fees" embedded through this inflation (i.e., the CARATS per BCC or BCB token increase by that rate) as compensation. For example, raising the ratio from 5,000:1 to 5,001:1 creates new CARATS pro rata to cover operating costs without reducing user balances.
- Eventually after 2 years, ~5,151.125 CARATS = 1 BCC token = 1 Diamond Standard Coin.
- Eventually after 2 years, ~51,511.25 CARATS = 1 BCB token = 1 Diamond Standard Bar.

Ownership Rights, Redemption and Secondary Market:

- A transfer of CARATS implies a transfer of the beneficial and legal ownership in the underlying commodity reserve (i.e., the Diamond Standard Coins and Bars).
- CARATS do not represent ownership of a specific Diamond Standard Coin or Bar; instead, holders own a pro rata share of the aggregate pool.
- Redemption of CARATS can be done without permission and fees only in multiples of 1 BCC or BCB token. Additional CARATS are also required depending on the redemption mode. Continued custody of the Diamond Standard Coin or Bar even after redemption costs ~USD 36 or ~USD 240 p.a., respectively. The other redemption mode, i.e., delivery, is only available in the USA, Canada, Switzerland, and the EU, and the holder is required to pay an additional shipping fee. Continuing the above example, after two years, you may need ~51,561 CARATS to redeem 1 Diamond Standard Bar, which is physically delivered to you in the USA (assuming a shipping fee of ~USD 50).
- Holders who satisfy redemption conditions may convert CARATS into BCC or BCB tokens, which correspond to actual Diamond Standard Coins or Bars in the custody. When redeeming, a user is randomly allocated a specific BCC or BCB token tied to a Diamond Standard Coin or Bar.
- CARATS, BCC tokens and BCB tokens are all convertible into USD on secondary exchange markets.

Case Study 6: Pax Gold – Regulated gold-backed tokens[73]

Pax Gold token ("**PAXG**") is a regulated digital token issued by Paxos Trust Company LLC. Each PAXG is a digitised representation of high-quality physical gold: London Good Delivery gold bars accredited by the London Bullion Market Association ("**LBMA**"). Each bar is typically about 400 fine troy ounces (upwards of ~USD 1,550,000 per Bar[74]). Each PAXG token represents one fine troy ounce of physical gold from a specific serialised gold bar. Built on Ethereum as an ERC-20 token, PAXG offers the auditability of blockchain and the trust associated with allocated physical gold, providing investors with fractional ownership (minimum trade size of 0.01 oz), zero custody fees, and flexible redemption options (including gold bars, unallocated gold, or fiat). Its trust structure ensures bankruptcy-remote asset protection. Oversight over PAXG is maintained via monthly third-party audits and regulatory oversight by the New York State Department of Financial Services ("**DFS**").[75]

Figure 15 Case study 6: Overview of the PAXG token

Overview:

- **Launched:** September 2019 by Paxos Trust Company (regulated by DFS).
- **Structure:** Each PAXG = 1 fine troy ounce of London Good Delivery (LBMA) gold, stored in London vaults.
- **Token Issuer:** Paxos Trust Company LLC
- **Blockchain:** ERC-20 token on Ethereum.
- **Legal form:** Asset-backed digital commodity token
- **Asset class:** Commodities
- **Product type:** Spot commodities
- **Ticker:** PAXG
- **Base currency:** United States Dollars

PAXG token's lifecycle:

Step	Process	Key Feature
Creation	Buy with USD or unallocated gold → Paxos converts into allocated LBMA bars → mints equivalent tokens.	Instant settlement (T0–T2).
Holding	Each token is mapped to a serialised gold bar in Paxos' vaults. Holders can view the bar's serial number, purity, and weight.	Fully allocated, bankruptcy-remote.
Transfer/Trading	On the Ethereum blockchain, tradable globally, 24/7 on exchanges.	Near-instant settlement.
Redemption	Options: (a) Physical Good Delivery bars (≥430 oz), (b) unallocated gold entitlement, or (c) USD fiat currency via Paxos.	Flexible exit.

Commercials:

Feature	PAXG
Custody Fees	0% (vs ETFs ~19–40 bps/year).
Transaction Fee	0.02% Paxos fee + Ethereum gas.
Minimum Trade Size	0.01 oz (~$15).
Settlement Terms	T0–T2.
Price Reference	Spot exchange rate of gold against the USD index.
Redemption Fee	Tiered (volume-based).

Custody & Oversight:

- **Custodian**: The custody of the PAXG tokens is with the Paxos Trust Company LLC, a limited-purpose trust company. The custody of the underlying gold is in LBMA vaults (Brink's bullion vaults) based in London.
- **Regulator:** The Paxos Trust Company LLC is regulated by the New York State Department of Financial Services (NYDFS).
- **Audit:** Monthly attestation by a nationally ranked independent auditor confirming 1:1 backing.
- **Bankruptcy Remote:** Assets legally segregated from Paxos' corporate balance sheet.

73 Paxos, Pax Gold, https://www.paxos.com/pax-gold.

74 Price as on September 30, 2025.

75 New York State, Department of Financial Services, 'Superintendent of Financial Services Linda A. Lacewell Announces Approval of First Gold-Backed Virtual Currency in New York State', https://www.dfs.ny.gov/reports_and_publications/press_releases/pr1909051.

- **Smart Contract:** The PAX Gold smart contract is based on the Paxos Standard smart contract, audited by three third-party specialists. The PAX Gold smart contract was also audited by two third-party specialists – ChainSecurity and CertiK.

PAXG's value proposition:

PAXG	Gold ETF	Gold Futures	Physical Bars
Regulated (NYDFS)	Regulated (SEC)	Regulated (CFTC)	Unregulated
0% custody fees	~19–40 bps	Storage and delivery	Storage and transport
Fractional ownership (0.01 oz)	1 share min	1 contract	One 400 oz bar
Redeemable for physical	No	No	Yes
Instant settlement	T+2	T+2	Manual, typically instant settlement

PAXG bridges the physical gold market and digital asset ecosystem by combining the trust in physical gold (LBMA Good Delivery bars) with the speed & divisibility of blockchain (ERC-20 portability and programmability), and regulated custody (DFS oversight and monthly audits). It thus offers cost-efficient, accessible, and secure exposure to physical gold for both retail and institutional investors.

Case Study 7: Russia's Alfa-Bank's 'A-Token' Platform

Alfa-Bank is Russia's largest private bank and the second-largest banking institution. It launched the 'A-Token' information system in 2023, following its license as an information system operator from the Russian central bank, the Bank of Russia, in 2022.

Figure 16 Case study 7: Overview of Russia's Digital Financial Assets Law and Alfa Bank's A-Tokens

Summary of Russia's Digital Financial Assets Law

*Federal Law No. 259-FZ, dated 31 July 2020, "On Digital Financial Assets, Digital Currency and on Amending Certain Laws of the Russian Federation" ("**Federal Law**")*

- Creates the category "digital financial assets" ("**DFAs**"), which are tokenised representations of monetary claims, property rights, or participation rights recorded on distributed-ledger systems.
- Requires issuances to be recorded in authorised systems.
- Only licensed Information System Operators ("**System Operator**") can issue DFAs. These ISOs must meet governance, cybersecurity, and KYC/AML requirements and register with the Bank of Russia.
- Allows secondary trading only on licensed DFA Exchange Operators ("**Exchange Operator**"), ensuring all secondary transfers happen on regulated, permissioned platforms.
- Mandates full identification of all participants, prohibiting anonymous holding or transfer of DFAs.
- Requires disclosure of issuance terms, including rights, obligations, redemption mechanics, and how the token links legally to the underlying asset.
- Recognises only on-platform ledger entries as the legal record of ownership, meaning off-ledger transfers have no legal effect.
- Imposes investor-protection rules, including suitability checks, asset segregation, reporting, and restrictions for retail access to certain DFAs.
- It separately defines "digital currency", but prohibits its use as a means of payment, keeping it outside the financial-market perimeter.

Overview of Alfa Bank's A-Token Platform

- **Launch:** Alfa-Bank launched the A-Token platform in 2023, after obtaining a System Operator licence in 2022.
- **Legal form:** A-Tokens qualify as DFAs and are fully backed by their reference assets.
- **Base currency:** All settlement, onboarding, and lifecycle cashflows occur in Rubles (the fiat currency) within the System Operator environment.
- **Corporate vehicle:** Alfa-Bank operates the A-Token information system and may itself issue DFAs. The platform also admits vetted third-party issuers that meet disclosure and due diligence requirements.

Eligibility of investors

- **Individuals (non-qualified):** May acquire eligible DFAs within statutory limits and platform-level product restrictions; subject to KYC/AML, suitability assessments, and enhanced risk disclosures. Non-qualified investors may invest up to RUB 600,000 per calendar year in DFAs.
- **Qualified investors and institutions:** Enjoy broad access, including DFAs referencing foreign digital rights, contingent payoffs, and institutional-grade assets (e.g., receivables, metals-linked DFAs).

Range of DFAs

By early March 2024, Alfa reported the issuance of 86 DFAs, totalling ~RUB 37.5 billion, representing ~45% of domestic market volume. Russian sources estimate a market size of ~RUB 82 billion outstanding at the time (noting methodological differences).

- **Monetary-claim DFAs**: Tokenised short-dated financing instruments (e.g., receivables, working-capital claims).
- **Commodity/metals-linked DFAs**: Asset-linked DFAs referencing precious metals; Alfa executed the first Russian gold-linked DFA transaction using hybrid digital rights.
- **Investment-linked DFAs**: Products referencing ETF shares and multi-asset model portfolios (e.g., the "Evergreen" DFA linked to stocks, bonds, gold, and cash).

- **Interbank pilots**: Alfa and Sberbank (Russia's largest bank) conducted early "parallel" DFA transactions, demonstrating operational interoperability within the regulatory perimeter (without cross-operator ledger bridging).

Technology

- **System architecture:** A permissioned, enterprise-grade distributed-ledger system operated by Alfa-Bank under Bank of Russia-approved information system rules, prioritising access control, data privacy, auditability, and operational resilience.
- **Interoperability:** Cross-operator ledger bridging is not contemplated under the current regime; however, interbank parallel-processing pilots show process-level interoperability consistent with the closed-loop model.
- **Security and compliance:** Operators must ensure continuous and reliable functioning, maintain data integrity, use qualified electronic signatures, and enforce KYC/AML and incident-response procedures. Civil liability for operational failures is expressly provided in the Federal Law.

Summarising – Token Taxonomy

The classification of digital tokens in the Indian context requires careful consideration of the underlying reference asset, the rights conferred upon token holders, and the applicable regulatory framework. As outlined in this chapter, this paper proposes the below token taxonomy.

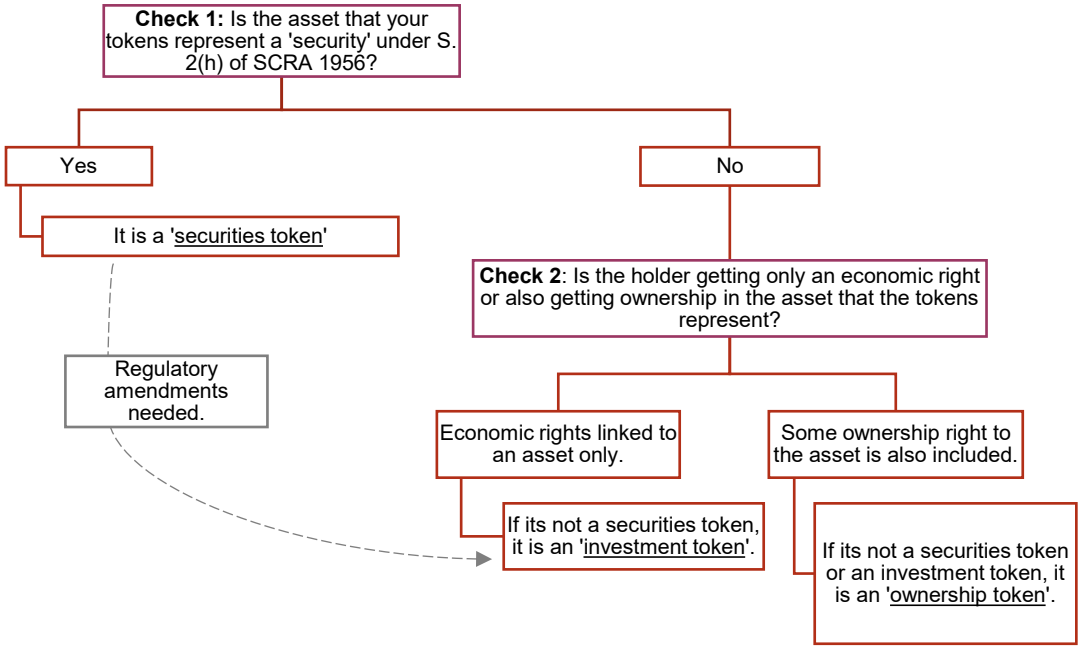
Securities tokens represent an exact digital form of securities recognised under Indian law and regulated by financial authorities. Their issuance and transfer on programmable platforms can bring enhanced efficiency, transparency, and interoperability, while remaining aligned with existing capital market regulations.

Investment tokens, on the other hand, provide investors with exposure to economic benefits derived from underlying assets without conferring direct ownership. These tokens highlighting the need for a tailored regulatory approach that accommodates innovative structures such as fractionalised cash flows from real estate, commodities, or intellectual property. A securities token is excluded from the scope of an investment token.

Finally, ownership tokens grant direct proprietary or utilisation rights in the underlying reference asset. While offering unique programmability and transferability advantages, these tokens face significant legal and regulatory uncertainties, particularly regarding the recognition of fractional ownership and the enforceability of on-chain rights in off-chain registries. A payment token, a securities token and an investment token are excluded from the scope of an investment token.

The flowchart in Figure 16 summarises this classification framework and highlights the decision points that determine the regulatory treatment of different token types. This visual representation highlights the crucial distinction between tokens that must adhere to existing securities law and those that may benefit from tailored regulatory frameworks, facilitating innovation while safeguarding investors.

Figure 17 Classification of tokens; Regulatory amendments needed



Chapter 4: Cross Jurisdictional Analysis

This chapter undertakes a comparative analysis of the approach towards the regulation of asset tokenisation across six jurisdictions. As tokenisation increasingly transforms the issuance, trading, and settlement of assets, legal systems worldwide have sought to adapt existing financial, securities, and property laws to programmable platforms / DLTs. This chapter examines how regulatory frameworks across the European Union, Luxembourg, Switzerland, the United Kingdom, Singapore, and the United States have responded to the challenges of integrating tokens within established legal frameworks.

Across these jurisdictions, a common regulatory objective emerges: to ensure that tokens are governed based on their economic function rather than their technological form. Whether through bespoke frameworks (for the European Union), interpretive guidance (for Switzerland and the United Kingdom), or the application of existing financial laws (as in the United States and Singapore), regulators are converging on principles of functional equivalence, investor protection, and market integrity. The comparative analysis highlights the different approaches to categorising tokens and the consequent compliances that apply in each jurisdiction.

European Union

Overview

The European Union ("**EU**") regulates digital assets through two complementary regimes: (a) the Markets in Financial Instruments Directive II[1] ("**MiFID II**"), introduced in 2014, and (b) the Markets in Crypto-Assets Regulation[2] ("**MiCA**"), which was adopted in 2023. MiFID II governs traditional financial instruments, while MiCA establishes a bespoke framework for crypto-assets that are not already covered by the existing financial legislation. Together, they ensure tokens are regulated according to their economic function rather than their technical implementation.

Determining Whether a Token Is a Financial Instrument

Under MiFID II, a 'financial instrument' includes transferable securities (shares, bonds, depositary receipts), money-market instruments, units in collective investment undertakings, and derivatives.[3] The European Securities and Markets Authority ("**ESMA**") guidelines stress a substance-over-form approach. To qualify as transferable securities, tokens must satisfy three criteria cumulatively: (a) they must not be an instrument of payment, (b) they must be part of a "class of securities," meaning tokens are fungible and interchangeable within the same issuance and confer similar rights, and (c) they must be negotiable on capital markets.[4] If a token meets these criteria, it falls under MiFID II, triggering the prospectus requirements, transparency and reporting obligations, market abuse safeguards, and investor protection rules that are typically applicable to any financial instrument in the EU.

Tokens that qualify as financial instruments under MiFID II are categorically excluded from MiCA's scope[5], which explicitly states that MiCA *"shall not apply to crypto-assets that qualify as financial instruments"* under MiFID II. This exclusion reflects the EU's commitment to preventing regulatory arbitrage and maintaining the principle that *"same activities, same risks, same rules"* apply regardless of technological implementation.[6] The binary classification ensures tokenised traditional securities remain regulated under established financial laws, protecting investors and markets, while MiCA governs new crypto-assets outside existing frameworks.

1 Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments (MiFID II) [2014] OJ L. 173/349.

2 Regulation (EU) 2023/1114 of the European Parliament and of the Council of 14 June 2023 on markets in crypto-assets (MiCA) [2023] OJ L. 150/40.

3 Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments (MiFID II) [2014] OJ L. 173/349, Article 4(1)(15) read with Section C of Annex I.

4 Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments (MiFID II) [2014] OJ L. 173/349, Article 4(1)(44); European Securities and Markets Authority (ESMA), 'Guidelines on the conditions and criteria for the qualification of crypto-assets as financial instruments,' (ESMA, March 19 2025), https://www.esma.europa.eu/sites/default/files/2025-03/ESMA75453128700-1323_Guidelines_on_the_conditions_and_criteria_for_the_qualification_of_CAs_as_FIs.pdf

5 Regulation (EU) 2023/1114 of the European Parliament and of the Council of 14 June 2023 on markets in crypto-assets (MiCA) [2023] OJ L. 150/40, Article 2(4)(a).

6 Regulation (EU) 2023/1114 of the European Parliament and of the Council of 14 June 2023 on markets in crypto-assets (MiCA) [2023] OJ L. 150/40, Recital 9 emphasises the technology-neutral approach, stating that "the same activities should be subject to the same risks and the same rules," regardless of whether assets are recorded on distributed ledgers.

Tokens Covered Under MiCA

MiCA applies to crypto-assets that do not qualify as financial instruments under MiFID II. It categorises tokens into three principal types[7]:

(a) **E-Money Tokens ("EMTs")** mirror traditional electronic money by stabilising their value against a single official currency. They serve as digital surrogates for coins and banknotes, primarily used for making payments.

(b) **Asset-Referenced Tokens ("ARTs")** maintain price stability by referencing one or more assets or rights, such as fiat currencies, commodities, or baskets thereof. They encompass all asset-backed tokens that are not ERTs.

(c) The third category is a catch-all for all **other crypto-assets** (other than EMTs and ARTs), including utility tokens. **Utility tokens** grant digital access to goods or services on distributed ledger platforms and do not aim to stabilise value.

Exclusions under MiCA.

MiCA excludes the following to avoid regulatory overlap and preserve existing frameworks:

(a) **Financial instruments already regulated under EU Law**: MiCA does not apply to any crypto-asset that qualifies as a financial instrument under the MiFID II. It also excludes deposits, including structured deposits, payment services[8] other than EMTs, securitisation positions[9], insurance-based investment products[10] and pension products[11].

(b) **Unique and non-fungible crypto-assets**: MiCA expressly excludes NFTs whose primary value derives from unique characteristics and non-fungibility, such as digital art, collectables, product guarantees or real estate.[12] These assets are not interchangeable and lack a common market benchmark, limiting their financial utility. Fractional interests in truly unique tokens may be considered fungible if issued in a large series of identical units, and tokens that appear non-fungible but function interchangeably are classified based on economic substance rather than issuer designation.[13]

(c) **Certain public-sector issuances and intragroup transactions**: MiCA omits crypto-assets issued by central banks acting in their monetary authority capacity, the European Investment Bank and its subsidiaries, the European Financial Stability Facility, public international organisations and service providers operating solely within a group.

(d) **Fully decentralised crypto-assets**: Crypto-assets lacking an identifiable issuer or operator and services provided without intermediaries fall outside MiCA's scope.[14]

(e) **Closed-loop tokens:** MiCA excludes tokens designed for use exclusively within a closed environment where they can only be redeemed or transferred by the issuer or within a predetermined network, such as loyalty or gift points[15] – a treatment analogous to the RBI's exclusion of closed-system Prepaid Payment Instruments ("**PPIs**").[16]

Treatment of Tokens under MiCA and MiFID II

(a) **Securities tokens**: Tokens that represent traditional securities such as equities, bonds, or derivatives retain their status as financial instruments under MiFID II despite tokenisation. Issuers must comply with the Prospectus Regulation[17], mandating the publication of a prospectus with key information for investors when securities are offered to the public, and the Market Abuse Regulation ("**MAR**")[18], which prohibits insider dealing, unlawful disclosure of inside information, and market manipulation. They must also comply with MiFID II obligations regarding licensing, transparency, best execution, and safeguarding client assets.[19] Tokenisation does not invoke any additional MiCA-specific obligations for these instruments.

(b) **Investment tokens**: These tokens derive value from underlying assets but may not grant direct ownership. Classification hinges on whether they confer characteristics of financial instruments (such as profit participation, dividend rights, or

7 Regulation (EU) 2023/1114 of the European Parliament and of the Council of 14 June 2023 on markets in crypto-assets (MiCA) [2023] OJ L. 150/40, Recital 18.

8 Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market (PSD2) [2015] OJ L 337/35.

9 Regulation (EU) 2017/2402 of the European Parliament and of the Council of 12 December 2017 on securitisation and creating a European framework for simple, transparent and standardised securitisation, [2017] OJ L 347/35.

10 Directive 2009/138/EC of 25 November 2009 on the taking-up and pursuit of the business of insurance and reinsurance (Solvency II), [2017] OJ L 335/1.

11 Regulation (EU) 2023/1114 of the European Parliament and of the Council of 14 June 2023 on markets in crypto-assets (MiCA) [2023] OJ L. 150/40, Article 2(2)(g).

12 Ibid, Recital 10.

13 Ibid, Recital 11.

14 Ibid, Recital 22.

15 Ibid, Recital 17.

16 Reserve Bank of India, Master Directions on Prepaid Payment Instruments (PPI-MD) (Updated 27 December 2024) (CO .DPSS.POLC.No.–S-479/02.14.006/2021-22, 27 August 2021) https://www.rbi.org.in/scripts/BS_ViewMasDirections.aspx?id=12156 accessed 30 October 2025.

17 Regulation (EU) 2017/1129 on the prospectus to be published when securities are offered to the public or admitted to trading on a regulated market, and repealing Directive 2003/71/EC (Prospectus Regulation) [2017] OJ L 168/12.

18 Regulation (EU) No 596/2014 of 16 April 2014 on market abuse (MAR), [2014] OJ L 173/1.

19 Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments (MiFID II) [2014] OJ L. 173/349, Articles 8, 10, 11, 16, 17-20, 23-27.

derivative-style payoffs). If so, MiFID II applies. If tokens merely track asset values without substantive proprietary rights, they qualify as ARTs under MiCA[20], and should meet the regulation's reserve-backing requirements for asset-referenced tokens, mandating that issuers hold liquid, low-risk assets equal to the token's value at all times. It should also comply with MiCA's governance rules, including minimum capital requirements, risk management frameworks, and internal controls. It prescribes disclosure obligations, requiring issuers to publish whitepapers with detailed information on token economics, reserve composition, asset valuation, and periodic reporting on reserve adequacy and governance arrangements.[21]

(c) **Ownership tokens**: These tokens represent direct property rights or specific, unique assets, rather than standardised financial instruments, and would accordingly also qualify as ARTs under MiCA.

Compliance differences between MiFID II and MiCA

The key compliance differences between MiFID II and MiCA are laid out below:

Figure 18 Differences in compliances between MiFID II and MiCA

Category	MiFID II	MiCA
Applicability	Broadly for financial instruments	Broadly for crypto-assets outside MiFID II.
Licensing	Authorisation required from national competent authorities for investment firms, trading venues, and data reporting services. Licensing includes capital and organisational requirements.	Crypto-Asset Service Providers ("**CASPs**")[22] must obtain authorisation from home Member State competent authorities, meeting legal, capital, and governance requirements.
Disclosure	Issuers of transferable securities are required to publish a prospectus that complies with the Prospectus Regulation's format, content and approval requirements.[23] A prospectus must contain all necessary information for investors to make informed decisions, present a clear and concise summary, provide detailed issuer and securities information, allow for universal registration documents for frequent issuers, ensure the responsibility of the issuer and key parties for accuracy, and obtain approval from the competent authority before issuance.	Crypto-asset issuers must produce a standardised white paper, providing clear, fair, and non-misleading information about the issuer, the crypto-asset project, the rights and obligations associated with the crypto-asset, the underlying technology, the public offer or trading admission, risks involved, and environmental impacts of the consensus mechanism, along with a management statement confirming compliance and a summary for easy understanding.[24]
Investor Protection	Investment firms must ensure appropriateness and suitability of products for clients[25], segregate client assets[26] and maintain access to investor compensation schemes.[27] Under MiFID II, appropriateness refers to assessing whether a non-advised service or product is suitable for a client based on their knowledge and experience. Suitability, on the other hand, requires a deeper evaluation of a client's knowledge, financial situation, risk tolerance, and investment objectives to ensure that products or advice meet their needs.	MiCA requires clear disclosure of conflicts of interest and fair governance of reserves for ARTs and EMTs, but does not mandate suitability assessments or compensation schemes for crypto-assets outside traditional financial instruments.
Market Rules	Market transparency and reporting obligations are governed by MiFID II[28] and by the MAR, which prohibits insider trading and market manipulation.	Rules against market abuse and manipulation. Trading platforms have surveillance, reporting, and sanction obligations.

20 Regulation (EU) 2023/1114 of the European Parliament and of the Council of 14 June 2023 on markets in crypto-assets (MiCA) [2023] OJ L. 150/40, Article 3(1)(6).

21 Ibid, Articles 17-26.

22 Regulation (EU) 2023/1114 of the European Parliament and of the Council of 14 June 2023 on markets in crypto-assets (MiCA) [2023] OJ L. 150/40, CASPs are defined as legal persons or undertakings whose business is to provide one or more crypto-asset services to clients professionally, such as custody and administration of crypto-assets, operation of trading platforms, exchange of crypto-assets for funds or other crypto-assets, execution of orders, placing, reception and transmission of orders, advice, portfolio management, and transfer services. CASPs must be authorised under MiCA to operate within the EU and comply with requirements on governance, capital, client asset safeguarding, and market abuse prevention.

23 Regulation (EU) 2017/1129 on the prospectus to be published when securities are offered to the public or admitted to trading on a regulated market, and repealing Directive 2003/71/EC (Prospectus Regulation) [2017] OJ L 168/12, Articles 6-11.

24 Regulation (EU) 2023/1114 of the European Parliament and of the Council of 14 June 2023 on markets in crypto-assets (MiCA) [2023] OJ L. 150/40, Article 6.

25 Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments (MiFID II) [2014] OJ L. 173/349, Articles 24-25.

26 Ibid, Article 16.

27 Directive 97/9/EC of the European Parliament and of the Council of 3 March 1997 on investor-compensation schemes, [1997] OJ L 84.

28 Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments (MiFID II) [2014] OJ L. 173/349, Articles 18-22.

Prudential and Conduct Rules	Capital adequacy, risk management, governance, conflicts of interest, remuneration policies, and compliance controls are required.	Prudential requirements are required, based on service, governance, risk management, AML/KYC and cybersecurity.
Enforcement and Provision	National competent authorities supervise MiFID II compliance[29] and cooperate through ESMA.[30]	National competent authorities designated by Member States have broad supervisory and enforcement powers under MiCA. These powers include the ability to require information, suspend or prohibit crypto-asset services or offers, order amendments or cessation of misleading marketing or white papers, conduct investigations and on-site inspections, and impose administrative penalties, including fines and bans on management personnel. Competent authorities cooperate closely with each other, with ESMA, and with the European Banking Authority ("**EBA**"), particularly for ARTs and EMTs.
Product Governance	Manufacturers and distributors must establish product governance policies[31] to identify target markets and assess product performance.	Crypto-asset issuers must adopt governance arrangements covering token issuance and lifecycle management[32], ensuring the white paper accurately reflects the token's design and intended use for its defined target audience.

Luxembourg

In December 2024, Luxembourg, an EU member state, adopted the Blockchain IV Law.[33] This law *"authorises the digital management of equity securities and allows for the tokenisation of physical assets, such as real estate",* under the MiCA framework[34].

Luxembourg has emerged as a leading EU jurisdiction for digital assets and tokenisation, underpinned by a robust and forward-looking legislative framework. Recognising the transformative potential of DLT in capital markets, Luxembourg has progressively modernised its laws to provide legal certainty and operational efficiency for the issuance, custody, and transfer of dematerialised securities.

Luxembourg's legal framework for dematerialised securities and tokenisation has developed through a series of legislative milestones. The foundation was laid by the '**Law of April 6, 2013, on dematerialised securities**', which established the legal basis for the issuance, conversion, and transfer of securities in electronic form.[35]

Building on this, Luxembourg enacted a series of "Blockchain Laws":

(a) **Blockchain I Law, Law of March 1, 2019**: Amended the 'Law of August 1, 2001, on the circulation of securities', explicitly recognising the use of DLT for securities accounts.[36]

(b) **Blockchain II Law, Law of January 22, 2021**: Amended the 'Law of April 6, 2013, on dematerialised securities', introducing the possibility of using DLT for the issuance of dematerialised securities.[37]

29 Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments (MiFID II) [2014] OJ L. 173/349, Articles 24-27.

30 Regulation (EU) No 1095/2010 of the European Parliament and of the Council of 24 November 2010 establishing a European Supervisory Authority (European Securities and Markets Authority), [2010] OJ L 331/84.

31 Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments (MiFID II) [2014] OJ L. 173/349, Articles 16(3) and 24.

32 Regulation (EU) 2023/1114 of the European Parliament and of the Council of 14 June 2023 on markets in crypto-assets (MiCA) [2023] OJ L. 150/40, Articles 10–16.

33 CSSF, 'Dematerialised Securities' (06 April, 2013).

34 Mayank Nagayach and Romain Swertvaeger, 'Real estate tokenization: A new era for property investment and Luxembourg's strategic role' (Ernst & Young, 24 February 2025).

35 Law of March 1, 2019 amending the amended law of August 1, 2001 concerning the circulation of securities [2019] Official Journal of the Grand Duchy of Luxembourg, Doc. Spoke. 7363.

36 Blockchain I Law, Law of March 1, 2019, https://legilux.public.lu/eli/etat/leg/loi/2019/03/01/a111/joLuxembourg; Law of August 1, 2001, https://www.cssf.lu/en/Document/law-of-1-august-2001/Luxembourg.

37 Blockchain II Law, Law of January 22, https://legilux.public.lu/eli/etat/leg/loi/2021/01/22/a43/jo2021Luxembourg; Law of April 6, 2013, https://www.cssf.lu/en/Document/law-of-6-april-2013/Luxembourg. h.

(c) **Blockchain III Law, Law of March 15, 2023**: Further integrating DLT financial instruments into the financial sector framework.[38]

(d) **Blockchain IV Law:** The most recent and comprehensive reform is the Blockchain IV Law: Law of December 20, 2024, amending the Law of April 6, 2013, on dematerialised securities and the Law of April 6, 1993, on the financial sector known as 'law on dematerialised securities'.[39] This law introduces the "Control Agent" (agent de contrôle), a regulated credit institution, investment firm, or settlement organisation appointed by the issuer to (i) maintain the securities issuance account within or through secured electronic registration mechanisms (including DLT), (ii) track the holding chain of dematerialised securities, and (iii) verify that the total amount of each issuance matches the sum of securities registered in the securities accounts of account keepers. The Control Agent is subject to notification by the Commission de Surveillance du Secteur Financier ("**CSSF**"), robust internal governance, and IT security requirements.

(e) The '**Law of February 6, 2025**' modernises Luxembourg's financial regulatory framework by implementing key EU regulations: the MiCA,[40] the Transfer of Funds Regulation,[41] and the European Green Bonds Regulation[42]. It designates the CSSF as the main supervisory authority for crypto-asset service providers, strengthens Anti-Money Laundering / Countering the Financing of Terrorism ("**AML/CFT**") rules,[43] and updates the financial sector and payment services laws[44].

The Blockchain IV Law applies to all dematerialised securities, including both capital securities (such as shares, units, and partnership interests) and debt securities (such as bonds and notes), whether listed or unlisted.[45] The Blockchain IV Law extends the regime to equity securities in addition to debt securities, and clarifies that dematerialised securities may be issued and recorded using secured electronic registration mechanisms, including DLT.[46] This enables the tokenisation of financial instruments (e.g., shares, bonds, fund units) as dematerialised securities recorded on DLT.

Transfers are effected by book entry on DLT, with legal equivalence to traditional systems.[47] The Control Agent's records constitute prima facie evidence of ownership.[48] The law also mandates compliance with AML, record retention, and operational resilience standards.[49]

Accordingly, the scope of Luxembourg blockchain law is limited. It focuses solely on securities, covering 'securities tokens' from this paper's categorisation, but does not provide entirely for investment tokens and ownership tokens. Additionally, the primary focus on DLT-based securities issuances may potentially limit the adaptability of the legal framework to other programmable blockchain applications.

Switzerland

Switzerland, under the Financial Market Supervisory Authority ("**FINMA**"), offers a clear, progressive regime for equity tokens. The framework blends technological neutrality with legal certainty via the DLT Act 2021, the Swiss Code of Obligations ("**Code**"), and FINMA's guidelines.

FINMA set its position in three steps:

(a) In 2017, FINMA, through its Guidelines on Regulatory treatment of initial coin offerings ("**2017 FINMA Guidelines**") clarified that there were no regulations specifically tailored to initial coin offerings ("**ICOs**") in Switzerland.[50] However, depending on its structure, existing Swiss financial market laws may apply to ICOs.[51] These include the Anti-Money Laundering Act ("**AMLA**"), the banking law (applicable to deposit-taking), the Financial Market Infrastructure Act ("**FMIA**"), the Stock Exchange Act ("**SESTA**") for securities and dealers, and the Collective Investment Schemes Act ("**CISA**").[52]

38 Blockchain III Law, Law of March 15, 2023, https://legilux.public.lu/eli/etat/leg/loi/2023/03/15/a147/joLuxembourg.

39 Blockchain IV Law, Law of December 20, 2024 https://www.cssf.lu/wp-content/uploads/L_060413_dematerialised_securities.pdf, Luxembourg; Law of April 6, 2013, https://legilux.public.lu/eli/etat/leg/loi/2013/04/06/n1/joLuxembourg.

40 Regulation (EU) 2023/1114 of the European Parliament and of the Council of 14 June 2023 on markets in crypto-assets (MiCA) [2023] OJ L. 150/40.

41 Regulation (EU) 2023/1113 of the European Parliament and of the Council of 31 May 2023 on information accompanying transfers of funds and certain crypto-assets, [2023] OJ L 150/1.

42 Regulation (EU) 2023/2631 of the European Parliament and of the Council of 22 November 2023 on European Green Bonds Regulation, [2023] L.

43 CSSF, 'Anti-Money Laundering and Countering the Financing of Terrorism (AML/CFT)', (30 July, 2025) <https://www.cssf.lu/en/anti-money-laundering-and-countering-the-financing-of-terrorism/>.

44 CSSF, 'Law On Payment Services', (10 November, 2009) <https://www.cssf.lu/wp-content/uploads/L_101109_psd_eng.pdf>.

45 CSSF, 'Law on dematerialised securities', (20 December, 2024), Article 1(11).

46 Ibid, Article 1(13)

47 Ibid, Article 1(1a).

48 Ibid. Article 1(10a).

49 Ibid Article 1(21a).

50 FINMA, 'FINMA Guidance 04/2017' (29 September, 2017), Para 2.

51 Ibid.

52 FINMA, 'Guidelines' (16 February 2018).

(b) In 2018, FINMA published the Guidelines for enquiries regarding the regulatory framework for ICOs, 2018 ("**2018 FINMA Guidelines**"), which provided a taxonomy for the issued tokens.[53] The guidelines clarified when tokens are considered "securities" under Swiss law[54], including uncertificated securities on a blockchain[55].[56] The taxonomy set out in the 2018 FINMA Guidelines is set out below in detail. Summarily:

- Payment tokens are not considered to be securities.[57]
- Utility tokens are not securities if they are fully functional at issuance and only provide access rights; if they also serve an investment purpose, they are treated as securities.[58]
- Asset tokens are treated as securities.[59]
- AMLA applies to financial intermediaries who issue or manage means of payment.[60]

(c) In 2019, FINMA published the Guidelines on Payments on the blockchain ("**2019 FINMA Guidelines**") through which it addressed the regulatory treatment of stablecoins (including those backed by fiat, commodities, real estate, or algorithmic mechanisms).[61] FINMA clarified when CISA licensing, banking, securities, or AML rules apply to stablecoins.[62] Additionally, FINMA aligned with the Financial Action Task Force ("**FATF**") by requiring that information about the originator and beneficiary be transmitted with blockchain-based payments, in accordance with Article 10 of the Anti-Money Laundering Ordinance of FINMA ("**AMLO-FINMA**").[63] This is to ensure compliance with AML regulations and transparency in blockchain transactions.[64]

2018 FINMA Guidelines on Token Classification

The 2018 FINMA Guidelines classify tokens offered in ICOs as one of the following three types[65]:

Figure 19 Summary of the 2018 FINMA Guidelines

Classification of Tokens	FINMA Definition (Based on the tokens' intended economic function.)	Reference Asset	Securities treatment
Payment tokens	Refers to tokens intended to be used, now or in the future, as a means of payment for acquiring goods or services or as a means of money or value transfer.[66]	They are synonymous with cryptocurrencies. Give rise to no claims on their issuer.[67]	Typically, not treated as securities.[68] Under Article 2(b) of the FMIA, they are generally not "securities" because they confer no claim or right to an underlying asset or profit.[69]
Utility tokens	Refers to tokens intended to provide access digitally to an application or service by means of a blockchain-based infrastructure.[70]	Tokens that are used to pay gas fees or to participate in on-chain governance.	Utility tokens are not considered securities if their sole purpose is to confer digital access rights, and the token can actually be used in this way at the point of issue. However, if the utility token also or only has an investment purpose at the point of issue, it will be treated as a security (in the same way as an asset token).[71]

53 Ibid, Para 3.1.
54 Financial Market Infrastructure Act, FinMIA, (Swiss Federation 19 June 2015), Article 2(b).
55 Swiss Code of Obligations, Article 973c, 2023.
56 FINMA, 'FINMA Guidance 04/2017' (29 September, 2017), Para 3.2.
57 Ibid, Para 3.2.1.
58 bid, Para 3.2.2.
59 Ibid, Para 3.2.3.
60 Ibid, Para 3.6; Anti-Money Laundering Act (AMLA), (Swiss Federation, 10 October 1997) Article 2 para. 3 let. b.
61 FINMA, 'FINMA Guidance 04/2017' (29 September, 2017); FINMA, 'Guidelines' (16 February 2018).
62 Ibid.
63 Anti-Money Laundering Ordinance AMLO, (Swiss Federation, 11 November 2015) Article 10.
64 Ibid.
65 Team LEXR, 'Overview of different crypto token types in Switzerland' (LEXR, 22 May, 2025) <https://www.lexr.com/en-ch/blog/crypto-token-types-switzerland/> A token can fall into different categories at the same time (e.g. hybrid payment and utility token). FINMA's approach is driven by the underlying economic function and purpose of a token (substance over form) and follows the principle same risks, same rules. LEXR, 'Overview of Different Crypto Token Types in Switzerland' (22 May 2025) https://www.lexr.com/en-ch/blog/crypto-token-types-switzerland/ accessed 22 September 2025.
66 FINMA, 'Guidelines' (16 February 2018), Para 3.1.
67 Ibid.
68 Securities are defined as 'standardized certificated or uncertificated securities, derivatives and intermediated securities that are suitable for mass trading.'
69 FINMA, 'Guidelines' (16 February 2018), Para 3.2.1.
70 Ibid, Para 3.1.
71 Ibid, Paras 3.1 and 3.2.2.

Classification of Tokens	FINMA Definition (Based on the tokens' intended economic function.)	Reference Asset	Securities treatment
Asset tokens[72]	Representation of assets: Tokens that represent an underlying asset such as fiat currency, a gold bar, a painting, IP rights or real estate.[73]	Tokens representing a unique, non-fungible asset (e.g., a specific artwork): Not considered securities if not standardised or mass tradable. Tokens representing a fractional interest in a pool of real estate or commodities	If the asset token merely evidences ownership of a specific, non-fungible asset (e.g., a token representing a specific painting or a unique real estate property) and is not standardised or suitable for mass trading, it is generally not considered a security.[74]
	Capital market instruments: Tokens representing assets such as debt or equity claims on the issuer, or entitlement to profits. [75]	Tokenised shares, bonds, or funds.	Treated as securities.[76]

The classification of a token determines the applicable legal regime. Tokens classified as securities must comply with the prospectus and financial services requirements under the Financial Services Act ("**FinSA**"),[77] as well as market conduct and trading venue rules under the FMIA. If a token is classified as a means of payment, the AMLA applies, requiring compliance with anti-money laundering obligations. If the issuance or management of tokens involves the acceptance of deposits or a guaranteed return, banking law may also be relevant. The correct classification is therefore essential for legal certainty and regulatory compliance.

(a) **Securities law requirements and civil law obligations**: Asset tokens must provide comprehensive, reliable information via prospectuses/offerings under the Code and FinSA (subject to exemptions).[78] There are mandatory disclosures regarding financials, business model, and applicable risks. Tokens qualifying as "securities" under FMIA[79] require licensing for primary underwriting or professional third-party offerings under Stock Exchanges and Securities Trading ("**SESTO**").[80] FINMA also requires issuers to remain responsible for all civil and tax compliance.[81]

(b) **AML considerations:** Financial intermediaries, including exchanges, must apply rigorous AML/KYC norms to identify and verify token holders.[82] According to the 2018 FINMA Guidelines, issuing a means of payment or providing payment services triggers compliance with AMLA.[83] Further, the 2019 FINMA Guidelines require KYC, beneficial owner identification, risk-based monitoring, self-regulatory organisations affiliation or direct FINMA supervision, and payment information transmission per AMLO-FINMA.[84]

(c) **Implications for digital asset exchanges:** Exchanges must ensure robust security, transparent trading, and strict compliance with securities and AML rules to build market trust. Venues and intermediaries handling tokens classifying as securities must meet FMIA market infrastructure and conduct rules and, where applicable, AMLA. Custodians and wallet providers controlling private keys must implement AMLA controls. FINMA's 2018 Guidelines clarify which regimes (amongst FMIA, FinSA, AMLA, the Swiss Banking Act, and CISA) apply on a case-by-case basis.

72 Asset tokens represent claims on assets, such as debt or equity claims, profit rights, or rights linked to physical or financial assets. This category includes tokens that function like shares, bonds, or derivatives, as well as tokens that enable the trading of physical assets on a blockchain. Asset tokens are considered "securities" under Article 2(b) FMIA and Article 973c of the Swiss Code of Obligations (CO) if they are standardised and suitable for mass trading. This means that their issuance, offering, and trading are subject to the full range of Swiss securities regulation, including prospectus requirements under the Financial Services Act (FinSA), licensing for trading venues, and ongoing disclosure obligations. If the asset tokens involve the pooling of funds managed by third parties (such as in the case of certain stablecoins or tokenised funds), the CISA may also apply, requiring additional licensing and investor protection measures.

73 FINMA, 'Guidelines' (16 February 2018), Para 3.1.

74 Ibid, Paras 3.1 and 3.2.3.

75 The definition is broad, and any token that implies an obligation or promise by the issuer to the token holder for financial participation in the future success of the project can fall under this category.

76 Ibid.

77 For instance, Financial Services Act, FinSA, (Swiss Federation, 15 June 2018).

78 FINMA, 'Guidelines' (16 February 2018), Para 3.3; Ibid, Article 3.

79 Financial Market Infrastructure Act, FinMIA, (Swiss Federation, 19 June 2015), Article 2(b).

80 Federal Act n Stock Exchanges and Securities Trading, SESTA (Swiss Federation, 2013), Article 3.

81 FINMA, 'Guidelines' (16 February 2018), Para 2.

82 Ibid, Para 3.6.

83 (n 319) AMLA, Article 2(3).

84 (n 322) AMLO, Article 10.

Distributed Ledger Technology Act, 2020[85] ("DLT Law") and equity tokens

The DLT Law, which came into effect in 2021, allows for shares of Swiss corporations to be tokenised, enabling companies to issue equity tokens for fundraising via private placements or retail investor platforms. It applies existing financial market laws to equity tokens classified as securities, subjecting them to FINMA oversight, including AML/KYC requirements.[86]

The DLT Law introduced a legal framework for the tokenisation of rights by enabling the creation of ledger-based securities ('*registerwertrechte*', or "**DLT Security**"). This framework allows for the electronic registration of rights, granting statutory legal enforceability to claims and membership rights recorded in a compliant electronic register. Both contractual claims (such as those under bonds, structured products, or other debt instruments) and certain membership rights (e.g., shares in a corporation) qualify as admissible underlying reference assets for a DLT Security.[87] DLT Securities afford rights to its holders and are asset-neutral. DLT Securities, under the Swiss framework, can cover securities, investment and ownership tokens provided under this paper. The legal position of each holder is defined by the issuance terms and the entries in the compliant register[88].

The DLT Law amended the FMIA to introduce a new license category for DLT trading facilities. These facilities enable the multilateral, non-discretionary trading of DLT securities (including equity tokens) and can provide integrated post-trade services, such as trading, clearing, settlement, and custody, within a single licensed entity. This represents a significant departure from traditional markets, which typically require these functions to be performed by separate entities. DLT trading facilities are subject to organisational, conduct, and prudential requirements.[89]

Swiss courts apply the Code to enforce rights embedded in ledger-based securities. Compliance with DLT Law and the issuance terms allows holders to assert claims and defend title based on the ledger record. Transfers that meet Code requirements are recognised as binding in private law disputes, ensuring legal certainty for DLT securities and their holders.[90]

Capital Market and Technology Association[91] - STANDARD for Share Tokenisation 2024[92]

The Capital Markets and Technology Association standard is an industry standard and not legally binding, but it provides requirements for the tokenisation of equity securities in Switzerland. While it is not a legal obligation, the standard is designed to align with the Code and related DLT provisions, offering guidance to issuers and market participants on how to comply with Swiss law when implementing tokenised shares. Key points include:

(a) The issuer must be expressly authorised in its articles of association to issue ledger-based (tokenised) shares, and the issuance of physical share certificates must be excluded.
(b) Shareholder identification is required: both legal and beneficial owners must be registered before exercising rights.
(c) Transfer restrictions are permissible only if enforced technically via smart contracts and must be clearly set out in the articles of association.
(d) The chosen distributed ledger must comply with Swiss legal requirements, and issuers must adopt clear tokenisation terms covering transfer and encumbrance processes.
(e) Issuers must provide token holders with comprehensive information on the tokenised shares, the distributed ledger, and smart contract functionalities, including security measures.

These measures promote transparency, legal compliance, and secure operation of tokenised securities, supporting effective regulatory oversight.

United Kingdom

The UK Financial Conduct Authority ("**FCA**") Guidelines and Regulatory Scope. The FCA regulates these tokens based on whether they fall within the established regulatory perimeter under the Financial Services and Markets Act, 2000[93] ("**FSMA**") and the

85 Federal Act on the Adaptation of Federal Law to Developments in Distributed Electronic Register Technology, (Swiss Federation, 2021).
86 (n 336) FinSA, Article 3.
87 (n 344) DLT Law, Articles 973d–973h.
88 Termed the 'register of uncertificated securities'. To validly create DLT Securities, the involved parties must enter into a registration agreement pursuant to which the relevant rights (a) are entered into the register of uncertificated securities, and (b) may exclusively be asserted based on and transferred via the register. The register must satisfy certain statutory technical minimum requirements, integrity conditions, etc.
89 (n 344) DLT Law, Articles 73a and 73c.
90 Ibid, Articles 973d–973h.
91 An independent association formed by leading actors from the financial, technological and legal sectors to create common standards around issuing, distributing and trading securities in the form of tokens using the DLT.
92 CMTA, 'Standard for the tokenization of shares of Swiss corporations using the distributed ledger technology' (December 2021).
93 Financial Services and Markets Act, (United Kingdom, 2000).

Regulated Activities Order, 2001[94] ("**RAO**"). The FCA's Perimeter Guidance[95] clearly distinguishes between regulated and unregulated tokens, focusing on the nature of rights attached to the tokens and their economic functions.

Tokens that qualify as transferable securities or electronic money (e-money tokens) fall within the regulatory perimeter and require authorisation for regulated activities. The legal enforceability of tokenised rights depends on their conformity with English law doctrines, such as property and contract law, with courts increasingly recognising tokenised rights when adequately documented and transferable.[96]

Regulated tokens

Regulated tokens are of two kinds:

(a) **Security Tokens**: Security tokens are crypto-assets that meet the RAO's definition of specified investments and resemble financial instruments under MiFID II. These tokens convey rights analogous to shares, bonds, or units in collective investment schemes and are therefore subject to FCA regulation. Firms involved in issuance, custody, trading, or advisory activities relating to security tokens must obtain FCA authorisation and comply with financial promotions, conduct, and AML obligations. This category explicitly excludes e-money tokens, which have a separate regulatory classification.

(b) **E-money Tokens**: E-money tokens represent electronically stored monetary value issued on receipt of funds, accepted by parties other than the issuer, and allow payment transactions, thereby meeting the definition of electronic money under the Electronic Money Regulations 2011. Examples include fiat-backed stablecoins designed for payments. These tokens are regulated under Electronic Money Regulations, 2011 ("**EMRs**") and FSMA, and firms issuing or managing e-money tokens must be authorised as Electronic Money Institutions ("**EMIs**"). This category was formerly encompassed within utility tokens but has now been distinctly separated by the FCA to clarify the regulatory perimeter and obligations.

Unregulated tokens

Tokens that neither meet the definition of security tokens nor e-money fall outside FCA regulation. These include:

(a) **Utility Tokens:** These grant holders access to a product or service but do not confer ownership or investment rights. Typically likened to prepaid vouchers, they do not fall within the FCA perimeter unless meeting the e-money definition.

(b) **Exchange Tokens:** These are decentralised cryptocurrencies which are typically used as a means of exchange or a store of value. These tokens are not legal tender nor specified investments and remain unregulated by the FCA.

Compliance differences between Regulated Tokens and Unregulated Tokens

The key compliance differences between regulated and unregulated tokens in the UK are laid out below:

Figure 20 Differences in compliance - regulated versus unregulated tokens

Category	Regulated Tokens	Unregulated Tokens
Regulatory Authority	FCA under FSMA 2000, RAO 2001	Typically, outside the scope of FCA
Authorisation Requirement	Mandatory FCA authorisation per FSMA Part IV[97]; regulated activities including dealing in investments, arranging deals, managing investments defined in RAO Schedules 1 and 2	No FCA authorisation needed
Scope of Regulation	Full regulation on specified investments (including shares, bonds, CIS units) under FSMA[98] and RAO	Limited regulation mainly on secondary activities
Prospectus Requirement	Prospectus Regulation (retained in UK law) for public offers of transferable securities	No prospectus required
AML Compliance	AML Regulations, 2017[99] and Proceeds of Crime Act, 2002[100] apply fully	AML obligations apply primarily to intermediaries
Market Abuse Regulation	MAR retained in UK law applies to securities and related instruments[101]	Market abuse rules generally do not apply

94 The Financial Services and Markets Act 2000 (Regulated Activities) Order (United Kingdom 2001).

95 Financial Conduct Authority, Guidance on Cryptoassets, PS19/22, (United Kingdom, July 2019).

96 AA v Persons Unknown [2019] EWHC 3556 (Comm). Judiciary of England and Wales, 'AA v Persons Unknown: Summary Case Note' (July 2022) https://www.judiciary.uk/wp-content/uploads/2022/07/AA-v-Persons-Unknown-summary-case-note-SB-amended-1.pdf accessed 22 September 2025.

97 Financial Services and Markets Act, (United Kingdom, 2000), Sections 19-25

98 Ibid, Sections 22 and 25

99 AML Regulations (United Kingdom, 2017).

100 Proceeds of Crime Act, (United Kingdom, 2002).

101 Regulation (EU) No 596/2014 of the European Parliament and of the Council, (United Kingdom, 2016).

Category	Regulated Tokens	Unregulated Tokens
Financial Promotions	FSMA restricts promotions of regulated investments to authorised persons[102]	Fewer restrictions on promotions
Consumer Protection	FSMA Part II provides for high consumer protection in respect of regulated financial services	Limited consumer protection specific to FCA
Custody and Safekeeping	Custody regulated under FCA Rules Client Assets Sourcebook[103] ("**CASS**"); firms must hold client assets in compliance with FCA CASS rules	Custody services may be unregulated
Trading Platforms	Operation of regulated investment exchanges is subject to FCA authorisation and oversight under Part XVIII of FSMA	Unregulated trading platforms
Cross-border Transactions	Subject to UK and international regulatory coordination and supervisory cooperation under Part XI of FSMA and relevant treaties	Less regulated but subject to sanctions and export controls

Implications of FCA's Perimeter Guidance

Appendix 1 of the FCA's PS19/22 Perimeter Guidance ("**Guidance**") clarifies that any person or firm conducting regulated activities involving crypto-assets that qualify as specified investments or e-money must obtain appropriate FCA authorisation. Regulated activities include issuance, dealing, advising, operating trading platforms, and custody services. The Guidance underscores the importance of compliance with prospectus requirements for public offers of security tokens, alongside AML and market abuse regulations applicable to regulated tokens.

Failure to obtain necessary permissions constitutes a criminal offence under FSMA, with potential penalties including fines and imprisonment. The appendix also highlights the FCA's expectation for firms to clearly distinguish regulated from unregulated activities in their communications and operations. Practical examples and a detailed list of market participants help firms identify relevant permissions and regulatory obligations within the crypto-asset ecosystem.

UK Government's Initiatives towards Regulatory Clarity and Cross-Border Integration for Digital Tokens

The UK government has been actively encouraging the development of digital tokens by recommending clearer, uniform legal rules and policies. The Law Commission's June 2023 report[104] advocates for establishing statutory definitions and legal treatments for digital assets, including clearer rules on property rights, custody, and transferability, and alignment with existing trust laws to enhance legal certainty and safeguard holders' rights. Similarly, the FCA and Singapore's MAS collaboration, Project Guardian (November 2023)[105], focuses on harmonising cross-border trading of tokenised assets by addressing custody, regulatory compliance, and data standardisation challenges to enable secure and compliant international token trading.

Singapore

In Singapore, the regulatory regime for asset-referenced tokens is based on the nature of the asset backing the tokens.[106] If the token acts like a currency, the token would be covered under the Payment Services Act 2019 ("**PSA 2019**"), and the issuer may be required to obtain a license to undertake activities governed under the PSA 2019.[107] If the token is referenced by securities/ fund units, the regime under the Securities and Futures Act, 2001 ("**SFA 2001**") applies, and the issuer will be required to obtain a license if the token is considered a 'capital market product' under the SFA 2001.[108] Other legal frameworks include the Financial Services and Markets Act, 2022 ("**FSMA 2022**")[109], which is a comprehensive framework for regulating the financial sector in Singapore, and the Financial Advisers Act, 2001 ("**FSAA 2001**")[110], which governs financial advisers, their representatives, and supervisors. Overall, payment tokens and securities tokens are under significant oversight of the Monetary Authority of Singapore

102 Financial Services and Markets Act, (United Kingdom, 2000), Sections 21 and 238A.

103 Financial Conduct Authority, 'CASS' (FCA Handbook) https://handbook.fca.org.uk/handbook?entityId=cass accessed 22 September 2025.

104 Law Commission for England and Wales, 'Digital assets: Final report'. (Law Com No 412, https://lawcom.gov.uk/project/digital-assets/2023).

105 Financial Conduct Authority and Monetary Authority of Singapore, 'Fund Tokenisation' (24 November 2023), https://www.fca.org.uk/firms/cryptoassets-our-work/fund-tokenisation. See also, Monetary Authority of Singapore, 'MAS Partners Financial Industry to Expand Asset Tokenisation Initiatives' (15 November 2023), https://www.mas.gov.sg/news/media-releases/2023/mas-partners-financial-industry-to-expand-asset-tokenisation-initiatives.

106 De Filippi, Primavera, and Aaron Wright. 2018. Blockchain and the Law: The Rule of Code. (Cambridge, MA: Harvard University Press, 2019).

107 Monetary Authority of Singapore, 'Licensing for Payment Service Providers'. There are three types of licenses that are granted under the PSA 2019 – (i) the Standard Payment Institution License; (ii) the Major Payment Institution License; and (iii) the Money-Changing License.

108 Monetary Authority of Singapore, 'Apply for Licensing of Capital Market Entities'. There are various licenses that are granted under the SFA 2001, for different categories of activities.

109 See also, Financial Services and Markets Act, (Republic of Singapore, 2022).

110 Monetary Authority of Singapore, 'Financial Adviser's Licence', Entities desiring to undertake activities regulated under the FSAA 2001 must hold a Financial Adviser's Licence unless otherwise exempted.

("**MAS**") – with regulatory updates as recent as June 2025, whereby MAS provided clarity on the licensing mandate for 'Digital Token Service Providers' providing services solely to customers outside of Singapore.[111] The update did not affect providers of services for digital payment tokens or tokens of capital market products that serve customers in Singapore, as such service providers were and continue to be regulated under the above framework(s).

The SFA 2001 is the primary legislation in Singapore regulating capital markets, including securities, derivatives, and collective investment schemes. MAS administers the SFA 2001 and regulates 'capital market products'[112], and it plays a central role in overseeing market conduct, investor protection, and systemic stability. MAS has also released guidelines on how the existing legal frameworks should be applied to offers/ issuance of digital tokens in Singapore.[113]

Offers or issues of securities tokens may be regulated by MAS if the tokens are considered 'capital markets products' under the SFA 2001. Since securities tokens will function as the instrument that confers rights similar to traditional equity, debt, or fund instruments, they would fall within the category of 'capital market products' as defined under the SFA 2001 and thus fall within MAS's regulatory scope. Regulatory requirements include:

(a) **Issuance offering requirements**: A person may only make an offer of tokens that constitute 'capital market products if the offer complies with the requirements under Part 13 of the SFA 2001.[114]
(b) **Organised market:** If the programmable platform facilitates trading of tokens which constitute 'capital market products', the entity establishing/ operating the platform may need to be licensed as a 'recognised market operator' or 'approved exchange' under the SFA 2001.[115]

In its 'Guide to Digital Token Offerings', MAS has specified that tokens may fall within its regulatory oversight if the token is considered a 'capital market product' under the SFA 2001 or a 'digital payment token' under the PAS 2019.[116]

Singapore is widely recognised as a global leader in the regulation and adoption of real-world asset tokenisation, with its approach characterised by regulatory clarity, proactive government engagement, and a strong public-private partnership model.[117] While a standalone legal framework for asset tokenisation has not been enacted in Singapore, the MAS has launched initiatives aimed at exploring the practical applications of tokenisation, demonstrating its commitment to fostering innovation in this area. One of the frontline initiatives is MAS's 'Project Guardian', whereby MAS has brought together over 40 financial institutions, industry associations, and policymakers across seven jurisdictions to run various asset tokenisation trials in six currencies, spanning fixed income and fund investment, as well as foreign exchange.[118]

Project Guardian has further influenced several bond issuances, with investment funds like Mikro Kapital now offering tokenised bonds. Mikro Kapital is a securitisation fund that operates in the microfinance industry and focuses on providing financing services to small and medium enterprises in developing markets, and acquiring risks connected to debt and equity of micro-financing companies, small financial institutions, leasing companies, banks or credit cooperatives. It tokenised its 'ALTERNATIVE eNote' and offers its token offering through InvestaX's and Obligate's regulated platforms. Investors receive fixed-coupon, fixed-maturity debt securities linked to the risks associated with micro-financing.[119]

Complementing Project Guardian, MAS also runs a robust FinTech Regulatory Sandbox regime, which allows tailored relaxations for market players to test new FinTech products and/or services (including token products/ tokenisation services) in a controlled environment with safeguards. Notably, ADDX (formerly iSTOX) used the MAS sandbox to become a fully licensed Recognised Market Operator and Capital Markets Services licensee.[120]

United States

There is no comprehensive legal regime that covers tokenisation of real-world assets in the United States of America ("**US**"), hence token products and services offered in the US must be analysed on a case-by-case basis to determine the governing

111 Monetary Authority of Singapore, 'MAS Clarifies Regulatory Regime for Digital Token Service Providers' (06 June 2025).
112 Securities and Futures Act, (Republic of Singapore, 2001), S. 2(1).
113 Authority of Singapore, 'A Guide to Digital Token Offerings' (26 May 2020).
114 Securities and Futures Act, (Republic of Singapore, 2001), Part 9 for further details on the offering requirements applicable to different types of 'capital market products'.
115 Securities and Futures Act, (Republic of Singapore, 2001), Section 7, Part 2.
116 Authority of Singapore, 'A Guide to Digital Token Offerings' (26 May 2020), Paragraph 2.1 and Paragraph 3.4.
117 Peiying Chua et al, 'Singapore: Digital Assets Regulation State of Play' (IFC, 20 Ma 2024); see also, Zodia Custody, 'Singapore's Bold Approach to Regulating Digital Assets' (2025).
118 Technode Global, 'MAS Announces Plans to Support Commercialization of Asset Tokenization' (04 November 2024).
119 InvestaX, 'Enote- Alternative by Mikro Kapital' (2025) accessed June 8, 2025.
120 ADDX, 'iSTOX Graduates From The MAS Regulatory Sandbox' (04 February, 2025).

regulatory framework(s), if any.[121] Furthermore, since there is no single regulator in charge of tokenised assets in the US, authority is divided among various federal and state agencies that have jurisdiction over aspects of such assets.[122] The Securities and Exchange Commission ("**SEC**"), Commodity Futures Trading Commission ("**CFTC**"), and state regulators all play roles in overseeing different facets of tokenisation, often depending on the specific nature of the tokenised asset.

The SEC released a statement on July 9, 2025, acknowledging the advantages that blockchain technology presents for the future of securities trading, but also explicitly declared that such technology "*does not have magical abilities to transform the nature of the underlying asset*" and that "*tokenised securities are still securities*" in the context of US federal securities laws.[123] Broadly speaking, the recently enacted Guiding and Establishing National Innovation for U.S. Stablecoins Act ("**GENIUS Act**") is focused on regulating USD-backed stablecoins[124], which constitute payment tokens and are excluded from the scope of this paper.

Securities tokens qualifying as a 'security'[125] per the Securities Act of 1933[126] will be governed under the framework of the Securities Act of 1933, which is administered by the SEC.[127] Similarly, for investment tokens and ownership tokens, the US regulatory space is also divided between federal and state regulators, since the regulatory framework depends on the category of the reference asset and the specific characterisation of the token and its uses. Investment tokens, which function as derivative instruments, may fall within the regulatory oversight of the CFTC if the token is related to the trade of 'commodities'[128] (in which contracts for future delivery are presently or in the future dealt in) as per the Commodity Exchange Act of 1936.[129]

With reference to the SEC's statement dated July 9, 2025[130], other SEC press releases[131] and the latest address by SEC's Chairman Paul Atkins[132], the US government appears to be keen on enhancing the regulatory and policy framework for tokenisation, having held roundtables with market participants to discuss the tokenisation of real-world assets and recommending consultation for players in the process of developing tokenisation products. Very recently, the Atkins announced the next phase of 'Project Crypto', emphasising that "*a digital form does not alter the substance of a security*" and that economic reality prevails. He introduced a four-bucket taxonomy: tokens can be classified as digital commodities/network tokens, digital collectibles, digital tools, and tokenised securities. Of these, tokenized securities will continue to be classified as securities. The SEC plans to introduce a formal guidance grounded in Howey and a tailored offering regime aligned with congressional initiatives, with coordination across financial regulators.

In the actual market, US-based WisdomTree's digital funds have offered exposure to a variety of traditional and emerging asset classes, such as fixed income, equities, and commodities, with ownership in the funds' shares maintained on blockchains.[133] Franklin Templeton has also launched a US-registered mutual fund that issues shares on the Stellar network's blockchain, which acts as a secondary recording of the fund's shares, while the official record of share ownership is maintained by the fund's transfer

121 Filipp Petkevitch, 'Legal Guide to Real-World Assets (RWA) Tokenization' (22 September 2025); see also, Ryan Mitteness et al, 'Assets: Pathways to SEC Registration' (2025).

122 Ibid.

123 Commissioner Hester M. Pierce. 'Enchanting, but Not Magical: A Statement on the Tokenization of Securities' (US Securities and Exchange Commission. 09 July 2025).

124 The White House, 'Fact Sheet: President Donald J. Trump Signs GENIUS Act into Law' (18 July 2025), https://www.whitehouse.gov/fact-sheets/2025/07/fact-sheet-president-donald-j-trump-signs-genius-act-into-law/.

125 Securities Act of 1933, (United States of America), Section 2(a)(1) defines 'security' to mean: any note, stock, treasury stock, security future, security-based swap, bond, debenture, evidence of indebtedness, certificate of interest or participation in any profit-sharing agreement, collateral-trust certificate, preorganization certificate or subscription, transferable share, investment contract, voting-trust certificate, certificate of deposit for a security, fractional undivided interest in oil, gas, or other mineral rights, any put, call, straddle, option, or privilege on any security, certificate of deposit, or group or index of securities (including any interest therein or based on the value thereof), or any put, call, straddle, option, or privilege entered into on a national securities exchange relating to foreign currency, or, in general, any interest or instrument commonly known as a ''security'', or any certificate of interest or participation in, temporary or interim certificate for, receipt for, guarantee of, or warrant or right to subscribe to or purchase, any of the foregoing

126 Cornell Law School, 'Securities Act of 1933', The Securities Act of 1933 is a federal legislation in the US, which regulates securities offerings in the country, with requirements such as mandatory registration and prospectuses, disclosure conditions, and investor protection guardrails, while allowing certain exemptions and providing for enforcement mechanisms administered by the SEC.

127 U.S. Securities and Exchange Commission, 'Framework for "Investment Contract" Analysis of Digital Assets' (2025).

128 The term 'commodity' is defined under the Commodities Exchange Act of 1936 to mean: wheat, cotton, rice, corn, oats, barley, rye, flaxseed, grain sorghums, mill feeds, butter, eggs, Solanum tuberosum (Irish potatoes), wool, wool tops, fats and oils (including lard, tallow, cottonseed oil, peanut oil, soybean oil, and all other fats and oils), cottonseed meal, cottonseed, peanuts, soybeans, soybean meal, livestock, livestock products, and frozen concentrated orange juice, and all other goods and articles, except onions (as provided by section 13–1) and motion picture box office receipts (or any index, measure, value, or data related to such receipts), and all services, rights, and interests (except motion picture box office receipts, or any index, measure, value or data related to such receipts) in which contracts for future delivery are presently or in the future dealt in.

129 Commodity Futures Trading Commission, 'Commodity Exchange Act & Regulations' (2025).

130 Commissioner Hester M. Pierce. 'Enchanting, but Not Magical: A Statement on the Tokenization of Securities' (U.S. Securities and Exchange Commission, 09 July 2025).

131 Commissioner Mark T. Uyeda. 'Tokenization of Real World Assets' (U.S. Securities and Exchange Commission, 12 May 2025).

132 Hester M Peirce, 'Statement on Tokenized Securities' (US Securities and Exchange Commission, 9 July 2025) https://www.sec.gov/newsroom/speeches-statements/peirce-statement-tokenized-securities-070925 accessed 29 November 2025.

133 Wisdom Tree, 'What exactly is digital fund?' (2025).

agent in book-entry form.[134] Furthermore, the Aspen Coin project tokenised ownership in the St. Regis Aspen Resort in Colorado, enabling investors to purchase the Aspen Digital Token (distributed through a private Reg D 506(c) offering under the Securities Act of 1933), which represents shares in the property.[135] In March 2025, Fidelity announced the issue of a tokenised money market fund and stablecoin.[136] The CME Group, in partnership with Google Cloud, is launching a programmable, distributed ledger designed to be easily used by financial institutions in traditional finance.

UNIDROIT Principles

The UNIDROIT Principles offer a detailed legal framework for digital assets[137], such as tokenised assets, by solving pertinent private law problems like classification, transfer, rights, and security interests. These Principles are meant to deliver a technology- and jurisdiction-neutral framework for proprietary, transactional and conflict-of-laws issues involving digital assets. They aim to reduce legal uncertainty, align market practice with private law, and support cross-border predictability for courts, legislators, and participants; as well as serve as guidelines for member states to enable their private laws to be consistent with best practice and international standards in relation to the holding, transfer and use as collateral of digital assets.

Figure 21 Applicability of the UNIDROIT Principles to tokens

UNIDROIT Principles	Applicability to tokens
Principle 1 - Scope	Principle 1 sets the scope of the UNIDROIT Principles as a private-law framework for digital assets, focusing on proprietary rights, transfer, custody, and security interests. It avoids regulatory/ licensing matters and defers many contract, property, intellectual property and consumer protection related issues to the domestic law of the member states.
Principle 3 - General Principles	The UNIDROIT Principles recognise that digital assets can be the subject of proprietary rights[138], meaning that individuals and entities can hold enforceable interests in them. Where there is a conflict, the member states' laws that align with the UNIDROIT Principles should take precedence over other laws. In all other respects, issues such as the validity of transfers, the creation of security rights, the relationships between parties, and the effectiveness of rights against third parties should be governed by the relevant domestic law of the member states. The UNIDROIT Principles are designed to address core concepts specific to digital assets, rather than to overhaul or replace general private law.
Principle 4 - Linked assets	The UNIDROIT Principles acknowledge that a digital asset may be linked to another asset, which can be either tangible or intangible. For example, an Ownership token will be linked to a reference asset, such as, immovable property, and will function only as a representation of title/ utilisation right(s) over the immovable property which exist separately; whereas, a Financial Asset Token does not need to be linked to a reference asset and can function as the primary instrument representing the investor's claim. The existence, requirements and legal effects of such a link, including the consequences for transfer, security interests and insolvency, should be determined by the relevant domestic law of the member states. Hence, whether a transfer of the digital asset will also affect the referenced asset will depend on the relevant domestic legal framework for such purpose, which can vary depending on the nature/ scope of the digital asset.
Principle 5 – Applicable law	The UNIDROIT Principles outline a hierarchy for determining the law applicable to proprietary issues involving digital assets. First, the member states' laws (whether or not aligned with the UNIDROIT Principles) that are expressly recognised as governing the digital asset itself will apply. If the digital asset is not expressly governed, then the member states' laws (whether or not aligned with the UNIDROIT Principles) that are expressly recognised as governing the system/ registry on which the digital asset is recorded will apply. If neither of the aforementioned applies, the relevant domestic law of the jurisdiction where the issuer is based (if ascertainable) will apply. Further, if none of the above apply, then the relevant domestic law of the jurisdiction where legal proceedings in respect of the digital assets are being conducted may be applied, and the forum conducting the proceedings may further (or even, alternatively) rely on domestic laws which align with the UNIDROIT Principles and the rules of private international law, as may be recognised/ applied in such jurisdiction.

134 Franklin Templeton. 'Frankil Onchain U.S. Government Money Fund' (2025).

135 Tracxn, 'Aspen Coin's Competitors and alternates' (2025). See also, Aspen Coin, 'The Aspen Digital Security Token', (2025).

136 Ledger Insights, 'Fidelity planning stablecoin- report' (26 March 2025), accessed May 26, 2025.

137 UNIDROIT Principles, 2016, Principle 2(2) defines 'digital asset' to mean an electronic record which is capable of being subject to control.

138 Ibid, As per Commentary 3.4, for the purposes of the UNIDROIT Principles, 'proprietary rights' include both proprietary interests and rights with proprietary effects.

UNIDROIT Principles	Applicability to tokens
	Furthermore, the Commentary to Principle 5 emphasises recognising party autonomy and governing agreements for digital assets in accordance with the laws expressly chosen and specified in such an agreement.
Principle 6 - Control	The UNIDROIT establish 'control'[139] as a factual standard that serves as the functional equivalent of possession for digital assets. It requires the ability to exclude others from the realising whole or partial benefit of the digital asset, to obtain substantially all of the digital asset's benefits, and to transfer such control to another person/ entity. The digital asset and/or the system in which it operates must be able to reliably identify the person in control. Further, Principle 6 recognises that the requirement for exclusivity can be relaxed in certain circumstances, such as through system features, multi-signature or multi-party computation arrangements, or agency relationships.
Principle 7 - Identification of a person in control of a digital asset	When a dispute arises over who controls a digital asset, it is sufficient for a person to demonstrate that they meet the identification requirement in relation to the abilities specified in Principle 6. If a person can show they have the ability to exclude others and to change control, these abilities are presumed to be exclusive unless proven otherwise. Such identification can be established through reasonable means, such as a cryptographic key, account number, or office, even if these do not reveal the person's actual identity. However, the Commentary to Principle 7 states that the aforementioned presumptions are subject to the procedural law of the jurisdiction in which the dispute arises/ is being adjudicated and can be rebutted. For example, a person who previously held control over a digital asset can prove that they have a better proprietary interest than the person presently having control by proving that the change of control[140] occurred wrongfully/ illegally.
Principle 8 - Innocent Acquisition	A transferee who obtains control of a digital asset and satisfies the applicable good faith or take-free standards under the relevant domestic law governing such digital asset will acquire the digital asset free of any conflicting proprietary claims, even if the transferor acted wrongfully. Where domestic law does not suffice for determining whether a transferee is an innocent acquirer, Principle 8(5) provides additional requirements that must be applied to make such a determination, which are to be read in conjunction with the guidelines under Principle 5(1). Further, subject to Principle 9, the relevant domestic law should be applied to determine the rights and liabilities of a transferee who is found not to be an innocent acquirer.
Principle 9 - Rights of transferee	The general rule of *nemo dat quod non habet*[141] applies, meaning that a person can only transfer the proprietary rights in a digital asset that such person actually possesses and no other rights, except where the innocent acquisition rule under Principle 8 applies. Principle 9 further provides that a transferee acquires all the rights in a digital asset that the transferor had or had the power to transfer, but only to the extent of the rights that were actually transferred. This means that downstream transferees can benefit from the clean title obtained by an innocent acquirer, even if they themselves would not qualify as innocent acquirers.
Principle 10 - Custody	For the purposes of the UNIDROIT Principles, custody is the act of maintaining a digital asset for a client[142] in the ordinary course of business, either through the custodian's[143] own control or by engaging a sub-custodian[144]. The UNIDROIT Principles presume that a custody relationship exists, with corresponding client

139 Ibid, As per Principle 6(1) (and subject to Paragraph (2) and (3) of Principle 6) a person has 'control' of a digital asset if:

(a) the digital asset, or the relevant protocol or system, confers on that person: (i) the exclusive ability to prevent others from obtaining substantially all of the benefit from the digital asset; (ii) the ability to obtain substantially all of the benefit from the digital asset; and (iii) the exclusive ability to transfer the abilities in sub-paragraphs (i), (ii) and (iii) to another person; and

(b) the digital asset, or the relevant protocols or system, allows that person to identify itself as having the abilities set out in sub-paragraph (a) above.

140 Ibid, Principle 6(2) defines 'change of control' to mean: a transfer of the abilities in Paragraph (1)(a) of Principle 6 to another person, and includes the replacement, modification, destruction, cancellation, or elimination of a digital asset, and the resulting and corresponding derivative creation of a new digital asset (a 'resulting digital asset') which is subject to the control of another person.

141 The Commentary to Principle 9 states that Paragraph (1) of Principle 9 embodies the rule of nemo dat quod non habet, which means: one cannot give what one does not have.

142 Ibid, Principle 10(1)(c) defines the term 'client' to mean: a person to whom a custodian provides services pursuant to a custody agreement.

143 Ibid, Principle 10(1)(a) defines the term 'custodian' to mean: a person who provides services to a client pursuant to a custody agreement, and who is acting in that capacity.

144 Ibid, Principle 10(1)(b) defines the term 'sub-custodian' to mean: a custodian who provides services to another custodian pursuant to a custody agreement, and who is acting in that capacity.

UNIDROIT Principles	Applicability to tokens
	protections in insolvency, unless the custody agreement[145] explicitly states that assets held by the provider are subject to distribution to its creditors. This principle distinguishes true custody from non-custodial arrangements and from agreements that merely create delivery obligations.
Principle 11 - Duties owed by a custodian to its client	Custodians are subject to core duties that cannot be excluded by the custodian agreement, including the obligation to refrain from unauthorised use of client assets, to follow client instructions, and to safeguard the digital assets. Additional illustrative duties may include keeping accurate records at the client level, maintaining sufficient assets to match client entitlements, promptly acquiring assets to cure any shortfalls, segregating client assets from the custodian's own assets, and passing benefits arising from digital assets to the client for whom it maintains those assets. Sub-custody is permitted, provided that the sub-custodian is subject to equivalent duties.
Principle 12 – Innocent client	When a custodian maintains a digital asset for a client, the client is protected in a manner similar to the innocent acquisition rule, meaning that third-party proprietary claims cannot be asserted against the client, even if the custodian's own acquisition of the digital asset was defective. This protection applies whether the digital asset is held individually for the client or as part of a pooled holding of fungible digital assets. However, this protection is not available where the client knows or ought to have known that the digital asset belonged to another person and that the acquisition violates the rights of such other person.
Principle 13 - Insolvency of a custodian and creditor claims	If a custodian enters insolvency, the digital assets that it maintains for clients under a custody agreement are excluded from the custodian's insolvency estate and are not available to satisfy the custodian's creditors. Rights that the custodian holds against sub-custodians in respect of client assets are similarly protected. In the event of a shortfall in pooled fungible digital assets, the member state may choose to require that any available digital assets, maintained by the custodian for itself, be used to cover the loss before the remaining shortfall is shared proportionally among affected clients. The custodian's duties to clients continue to apply throughout the insolvency process.
Principle 14 – Secured transactions: general	The UNIDROIT Principles confirm that digital assets can be used as collateral to secure obligations. When a digital asset is linked to another asset, the legal effect of creating a security right in the digital asset (including whether it extends to the referenced asset and its effectiveness against third parties) is to be determined by applicable domestic law. Section V of the UNIDROIT Principles addresses key secured transactions issues specific to digital assets, while leaving the broader framework of security law to domestic legal regimes.
Principle 15 - Control as a method of achieving third-party effectiveness	A security right in a digital asset can be made effective against third parties by the secured creditor either obtaining direct control of the asset or taking control through a custodian or sub-custodian acting on its behalf. This approach aligns legal requirements with prevailing market practices, such as the use of multi-signature escrow arrangements, and complements any other methods of third-party effectiveness that may be available under domestic law.
Principle 16 - Priority of security rights	A security right in a digital asset that is made effective against third parties by obtaining control as per Principle 15 takes priority over any security right that is made effective only by other methods, such as registration. It is possible for multiple parties to have control, and their relative priority can be arranged by contract, such as through intercreditor or subordination agreements. The fact that a secured creditor has knowledge of competing interests does not undermine the priority conferred by control.
Principle 17 - Enforcement of security rights	The enforcement of security rights in digital assets is to be governed by applicable domestic law, including requirements to act in good faith and in a commercially reasonable manner. Where a security right is made effective by control, enforcement is generally more straightforward, while security rights made effective only by registration may require a court order if the debtor or custodian does not cooperate. Custodians are not required to act on instructions from secured creditors for non-control interests unless they have agreed to do so. Exceptions for recognised markets or assets that rapidly decline in value may allow for streamlined enforcement procedures.

145 Ibid, As per Paragraph (3) of Principle 10, an agreement for services to a client in relation to a digital asset is a 'custody agreement' if: (a) the service is provided in the ordinary course of the service provider's business; (b) the service provider is obliged to obtain (if this is not yet the case) and to maintain the digital asset for the client; and (c) the client does not have the exclusive ability to change the control of the digital asset within the meaning of Principle 6(2). Provided that, as per Paragraph (4) of Principle 10, if it is clear from the agreement that, if the service provider enters into an insolvency-related proceeding, the digital asset would be part of the service provider's assets available for distribution to its creditors, then such agreement would not be considered a custody agreement.

UNIDROIT Principles	Applicability to tokens
Principle 18 - Procedural law, including enforcement	Procedural matters, including the enforcement of rights relating to digital assets, are generally governed by applicable domestic law. Courts should have the ability to order a change of control, compel the disclosure of information (while balancing privacy concerns), and take measures to preserve assets, such as issuing freezing orders, given the speed and pseudonymity of digital asset transactions. Procedures should also be adapted to accommodate execution through custodians and to address the cross-border nature of many digital asset cases. In some situations, it may be necessary for public authorities to take control of digital assets to enforce judgments.
Principle 19 - Effect of insolvency on a proprietary right in a digital asset.	Proprietary rights in digital assets that have been made effective against third parties before the opening of an insolvency proceeding will generally continue to be recognised in the insolvency estate. The law applicable under Principle 5 governs proprietary questions that arise before the commencement of insolvency. However, domestic insolvency law (relating to the ranking of claims, avoidance of preferences or fraudulent transfers, stays on enforcement, and the administration of the estate) continues to apply. The protections for clients and exclusions for custody arrangements set out in Principle 13 remain in effect during insolvency.

Assessing beyond definitional clarity

Beyond definitional coherence, the maturity of a jurisdiction's tokenisation regime depends on how effectively it translates classification rules into enforceable market and supervisory outcomes. Four factors must be particularly taken into consideration:

(a) **Clear framework for classification:** Regulatory classification must be clear enough to avoid perimeter ambiguity and regulatory arbitrage. Frameworks such as the EU's *MiCA–MiFID II* distinction, Switzerland's *payment–utility–asset* taxonomy, the FCA's *security/e-money* delineation, Luxembourg's technologically neutral *dematerialised securities* regime, and Singapore's *Payment Services Act* allocation collectively illustrate a substance over form approach, and align with the principle of "*same activities, same risks, same rules*." The emerging *UNIDROIT Principles* complement these efforts by providing a jurisdiction-agnostic private law framework for digital assets, clarifying proprietary rights, collateral treatment, and conflict-of-laws rules.

(b) **Certainty of legal enforcement**: Robust enforcement powers, like MiCA's National Competent Authorities' mandates, FINMA's securities oversight and AML reach, the FCA's FSMA perimeter and custody protections, and Singapore's market operator licensing, ensure predictable remedies and effective deterrence. The Swiss DLT Act's recognition of ledger-based securities and insolvency segregation further reinforces confidence in digital asset holding structures.

(c) **Active projects:** Mature ecosystems validate their legal frameworks through real-world pilots. Initiatives such as *MAS's Project Guardian*, tokenised bond and fund issuances (e.g., Mikro Kapital eNotes), Swiss DLT trading venues, and US tokenised fund and collateral projects demonstrate that legal and prudential principles can operate effectively in practice, building templates for future interoperability and custody standards.

(d) **Regulatory/ policy support**: Measured regulatory and policy support encourages innovation. Legislative upgrades (such as Luxembourg's *Blockchain IV Law* and the Swiss *DLT Act*), sandboxes, issuance grants, and cross-border cooperation (such as the *FCA–MAS* collaboration) collectively foster innovation while maintaining investor protection and market integrity.

Jurisdictions that integrate clear classification with enforceable rights, tested pilot programmes, and proactive supervisory engagement convert legal certainty into operational confidence, accelerating institutional adoption of tokenised assets. All of the above four factors must be considered together when assessing the maturity of a jurisdiction's tokenisation market.

Figure 22 Comparative assessment: Maturity of the tokenisation markets of the European Union, Luxembourg, Switzerland, the United Kingdom, Singapore and the United States

Jurisdiction	Factors for assessing the maturity of the tokenisation market.			
	Clear framework for classification	Certainty of legal enforcement	Active projects	Regulatory/ policy support
European Union	positive	positive	positive	positive
Luxembourg	negative	positive	in progress	in progress
Switzerland	positive	positive	positive	positive
United Kingdom	positive	in progress	in progress	positive
Singapore	negative	positive	positive	positive
United States	negative	negative	positive	in progress

Chapter 5: Design Choices for the Indian Framework Governing Asset Tokenisation

Asset tokenisation requires a regulatory framework that is technologically neutral, economically coherent, and operationally enforceable. To that end, this chapter sets out the principal design choices available for developing a regulatory framework and the key considerations that affect India's regulatory framework for asset tokenisation in India. Considering these design choices and India specific factors, this chapter then goes on to propose a uniform taxonomy and a comprehensive governance framework spanning the full lifecycle of a tokenised asset.

Principal regulatory approaches followed globally

The regulatory landscape for asset tokenisation is evolving globally, with jurisdictions adopting a range of approaches to address the unique challenges and opportunities presented by DLT and smart contracts. Drawing on the OECD's comprehensive analysis and international experience summarised in its report[1] and policy paper[2], four principal regulatory approaches can be identified: (a) the technology-neutral approach; (b) the clarifications and guidance approach; (c) the dedicated tailor-made frameworks; and (d) the adapting existing policies approach.[3]

Technology-Neutral Approach

This approach applies existing financial regulations to tokenised assets, irrespective of the technological medium through which the product, service, or activity is provided.[4] The regulatory perimeter and subsequent treatment of financial products, services and activities are not influenced by the underlying technology. The use of DLTs, smart contracts, or other technologies does not affect the way regulators assess whether the ensuing financial product/service, or activity falls within the regulatory perimeter or not, and consequently, whether it is regulated or unregulated.[5] This approach provides continuity and legal certainty, but may not fully address novel risks or operational realities introduced by DLT and smart contracts.[6]

The principle of *"same activity, same risk, same regulation"* has gained widespread acceptance among global regulators, as evidenced by its adoption by the Financial Stability Board ("**FSB**") and implementation across major jurisdictions. [7] This approach ensures that similar financial activities receive consistent regulatory treatment regardless of the underlying technology platform used for delivery, preventing market distortion and maintaining competitive neutrality.[8]

Clarifications and Guidance Approach

Under this model, regulators issue guidance and clarifications around the (pre-existing) regulatory and supervisory frameworks applied to tokenised assets and markets, protecting financial consumers, investors, and other market participants, while promoting

1 Organisation for Economic Co-operation and Development, *Regulatory Approaches to the Tokenisation of Assets* (March 2021) https://www.oecd.org/content/dam/oecd/en/publications/reports/2021/03/regulatory-approaches-to-the-tokenisation-of-assets_da7ae482/aea35466-en.pdf accessed 22 September 2025.

2 OECD, *Tokenisation of Assets and Distributed Ledger Technologies in Financial Markets* (2025) 18 https://www.oecd.org/content/dam/oecd/en/publications/reports/2025/01/tokenisation-of-assets-and-distributed-ledger-technologies-in-financial-markets_be149012/40e7f217-en.pdf accessed 28 November 2025.

3 These four regulatory approaches are non-mutually exclusive. OECD expressly notes that policy design can vary beyond these four approaches depending on the risks and participants in each tokenisation market. Further, OECD materials are in the context of financial markets, but can be applied generally.

4 (n 1) 12.

5 (n 1) 7.

6 European Banking Authority, *Analysis of RegTech in the EU Financial Sector* (June 2021) 5 https://www.eba.europa.eu/sites/default/files/document_library/Publications/Reports/2021/1015484/EBA%20analysis%20of%20RegTech%20in%20the%20EU%20financial%20sector.pdf accessed 6 August 2025; IFSCA Consultation Paper (n 9).

7 Financial Stability Board, *Regulation, Supervision and Oversight of Crypto-Asset Activities and Markets: Consultative Document* (October 2022) 1 https://www.fsb.org/uploads/P111022-3.pdf accessed 8 August 2025; International Monetary Fund, *Institutional Arrangements for Fintech Regulation: Supervisory Monitoring* (June 2023) 10 https://www.elibrary.imf.org/view/journals/063/2023/004/article-A001-en.xml accessed 8 August 2025.

8 MinterEllisonRuddWatts, *Regulation of FinTech: Jurisdiction Analysis* (May 2019) https://www.treasury.govt.nz/sites/default/files/2019-06/minterellison-fintech.pdf accessed 8 August 2025.

market integrity.[9] This approach is particularly valuable at the early stages of market development, where ambiguity may exist as to whether and how tokenised assets fall within the scope of the regulator's remit.

Recent developments show this approach being actively employed by regulators worldwide.[10] UK's FCA has published extensive guidance documents and consultation/discussion papers to clarify how existing regulations apply to crypto-assets and tokenised securities.[11] Similarly, MAS has provided detailed guidance on the classification and treatment of digital tokens under existing regulatory frameworks.[12] This interpretative approach allows regulators to maintain flexibility while providing market participants with necessary clarity on compliance obligations.

Dedicated, Tailor-Made Frameworks

Some jurisdictions have opted for bespoke, tailor-made rules for (parts of) tokenised asset markets, sometimes in spite of a general technology-neutral approach to financial regulation, as they recognise that the combination of technologies such as DLTs with finance could give rise to the potential for new types of risks.[13] Such policies either adapt existing schemes or introduce holistic frameworks or 'Blockchain Acts' covering DLT activity in markets.

EU's MICA exemplifies this approach by establishing a comprehensive, harmonised regulatory framework for crypto-assets and crypto-asset service providers across all 27 EU member states. MiCA introduces specific licensing requirements, conduct standards, and prudential rules tailored to the unique characteristics of digital assets.[14] Switzerland's DLT Act represents another innovative approach, introducing new legal concepts such as DLT Securities and creating specialised market infrastructure categories like DLT trading facilities.

Adapting Existing Policies

This approach involves the selective adjustment of existing laws to address specific issues related to tokenised markets, rather than introducing entirely new frameworks. This may include amendments to securities law, property law, or other relevant statutes to provide legal certainty and remove barriers for applications based on DLTs.[15]

Germany's adoption of the Electronic Securities Act in 2021 exemplifies this approach, creating the legal framework for tokenising real estate assets using digital ledger technology while building upon existing securities law principles.[16] Similarly, various jurisdictions have amended custody rules and market infrastructure regulations to accommodate digital assets without fundamentally restructuring their regulatory frameworks.[17]

"Same risk, same regulation" Approach

IFSCA has observed that jurisdictions globally have taken two principal approaches to regulating tokenised assets[18]:

- applying existing financial regulations to tokenised assets; and
- introducing new tailor-made regulatory frameworks.

Accordingly, once digital tokens are classified as 'securities' under Indian law, regulators must determine whether to adapt existing frameworks or establish a new regulatory architecture. IFSCA, in collaboration with the Expert Committee on Asset Tokenisation,

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9 (n 1).

10 IMF Institutional Arrangements for Fintech Regulation (n 7) 10.

11 Financial Conduct Authority, *Consultation Paper CP25/14: Stablecoin Issuance and Cryptoasset Custody* (May 2025) https://www.fca.org.uk/publication/consultation/cp25-14.pdf accessed 8 August 2025; Financial Conduct Authority, *Consultation Paper CP25/15: A Prudential Regime for Cryptoasset Firms* (May 2025) https://www.fca.org.uk/publication/consultation/cp25-15.pdf accessed 8 August 2025; Financial Conduct Authority, *Discussion Paper DP25/1: Regulating Cryptoasset Activities* (May 2025) https://www.skadden.com/-/media/files/publications/2025/05/uk-fca-discussion-paper-proposes/regulating_cryptoasset_activities.pdf accessed 8 August 2025.

12 Refer to Chapter 4 above.

13 International Financial Services Centres Authority (IFSCA), Consultation Paper on Regulatory Approach Towards Tokenization of Real-World Assets (26 February 2025).

14 European Parliament and Council Regulation (EU) 2023/1114 of 31 May 2023 on Markets in Crypto-Assets (MiCA), OJ L 150/40 https://eur-lex.europa.eu/eli/reg/2023/1114/oj/eng; Central Bank of Ireland, 'Markets in Crypto-Assets Regulation (MiCAR)' https://www.centralbank.ie/regulation/markets-in-crypto-assets-regulation accessed 8 August 2025.

15 (n 1) 20.

16 Norton Rose Fulbright, 'Draft Ordinance on Requirements for Electronic Securities Register Act Put Up for Discussion' (August 2021) https://www.nortonrosefulbright.com/en-in/knowledge/publications/16e66ead/draft-ordinance-on-requirements-for-electronic-securities-register-act-put-up-for-discussion accessed 8 August 2025.

17 R Henker, D Atzberger, W Scheibel and J Döllner, 'Real Estate Tokenization in Germany: Market Analysis and Concept of a Regulatory and Technical Solution' (2023) IEEE International Conference on Blockchain and Cryptocurrency (ICBC) 1 https://ieeexplore.ieee.org/document/10174954/ accessed 8 August 2025.

18 International Financial Services Centres Authority (IFSCA), Consultation Paper on Regulatory Approach Towards Tokenization of Real-World Assets (26 February 2025).

has envisaged a new infrastructure for the issuance, custody, and secondary trading of digital tokens[19]. A key driver of this approach is the principle of "same risk, same regulation" applied with due regard to the distinct risks and benefits of DLT[20].

IFSCA has noted that DLT-based market infrastructure, particularly with embedded smart contracts, differs materially from traditional infrastructure. Treating both alike could undermine DLT's advantages (e.g., transparency, immutability), while inadequately addressing its risks (e.g., scalability, role concentration, legal enforceability).[21]

As recognised by the OECD (2021), many jurisdictions have adopted custom frameworks for tokenised markets, even where a generally technology-neutral approach prevails, acknowledging that the DLT-finance intersection introduces novel regulatory challenges[22].

In this context, Indian regulators may consider two potential pathways:

- Designing a dedicated regulatory framework for tokenised securities; or
- Modifying the host of existing securities laws to accommodate tokenised instruments through targeted amendments or guidance.

Both the aforesaid approaches would require careful legal analysis and calibrated measures, recognising that tokenised assets may not neatly fit within traditional definitions of 'securities'.

Figure 23 OECD's four regulatory approaches to tokenisation

OECD approach	Core idea	Strengths	Limitations / Risks
Technology-neutral	Apply existing regulations to tokenised assets, ignoring the technology layer.	Continuity & legal certainty. Minimises regulatory arbitrage. Fast to implement.	May miss DLT-specific risks (custody of private keys, settlement finality). Industry may still need clarity on grey areas
Clarifications / guidance	Issue clarifications, guidance, FAQs, and no-action letters explaining how the current law applies.	Rapid, flexible, iterative. Gives market actors practical certainty without formal lawmaking. Allows the regulators to grow with the industry.	Soft-law with no statutory force; may still be challenged in a court of law. Patchwork can emerge if guidance is piecemeal
Dedicated, tailor-made frameworks	Enact **bespoke statutes** covering token issuance, DLT market infrastructure, custodians, etc.	Directly tackles novel concepts (token registers, smart contracts). Can create a competitive hub for digital finance. Enables holistic risk controls.	Longer legislative lead-time. Risk of locking in premature rules. Potential fragmentation vis-à-vis legacy regimes
Adapting existing policies	**Targeted amendments** to securities, property or bankruptcy statutes to recognise on-chain records, electronic registers, etc.	Limits disruption to settled doctrines or principles. Addresses the need for written law. Cheaper politically than completely new legislation.	Still leaves wider DLT issues (governance, DeFi) for future work. Multiple small fixes can become complex over time

Suggested Regulatory Approach

- *"Same risk, same regulation"* approach
- Clarifications and guidance approach
- Adapting existing policies

Working Group

- Establishing a **dedicated working group** comprising the RBI, SEBI, and key stakeholders may be established to examine the asset tokenisation landscape and outline a regulatory approach for India.
- The working group could begin by **issuing a series of guidance notes**, followed by targeted amendments to existing regulations.

19 Ibid.
20 Ibid.
21 Ibid.
22 OECD Going Digital Toolkit Note: Understanding the tokenisation of assets in financial markets (OECD Publishing, 2021).

Key Considerations for India's Regulatory Approach

OECD emphasises that **there is no one-size-fits-all model for regulating asset tokenisation**. Each jurisdiction and its regulators determine their approach to tokenisation by considering the maturity and growth potential of the domestic tokenisation market, the structure of its financial system, the number and mandates of the relevant regulatory bodies, and the country's broader FinTech strategy.[23] The choice of regulatory approach for India must be informed by several contextual factors.

Favourable Demographics and a Thriving FinTech Ecosystem

India has a young[24], a digitally literate population, with extensive smartphone penetration and cheap internet access.[25] Indians are increasingly trusting and adopting digital financial services, although largely towards digital payments. Further, India is home to the world's third-largest startup economy[26] and one of the fastest-growing FinTech ecosystems, with an estimated market capitalisation of above USD 110 billion.[27] These factors together create a conducive environment for the gradual introduction of tokenised products.

Multiplicity of Financial Regulators

Given that tokens sit at the intersection of payments and securities markets, they necessitate coordination among multiple regulators.[28] Tokenised assets lie at the intersection of payments, securities, and even custody functions, and thus require coordinated regulatory responses that protect investors, ensure financial stability, and promote innovation.[29] India's financial sector is characterised by multiple regulators with distinct mandates: the RBI oversees banking and payments, SEBI regulates securities markets, IRDAI supervises insurance, MCA supervises all limited liability entities, and PFRDA governs pensions. It also involves an interface with cross-cutting agencies, such as the FIU-Ind and MeitY, which oversee AML and data governance frameworks, respectively. The GIFT IFSC is governed by a single unified regulator, the IFSCA. The IFSCA acts as a unified regulator for all financial services, products, and institutions operating in the IFSCs[30].

While this structure ensures sectoral expertise, it creates coordination challenges for cross-sectoral innovations such as tokenisation. The OECD cautions that regulatory fragmentation can lead to uncertainty when tokens embody multiple economic functions (e.g., representing both a payment claim and a security interest).[31] India's approach must therefore prioritise inter-regulatory coordination and common definitional clarity, particularly concerning the legal recognition of tokenised representations of ownership, transferability, and custody rights. Establishing clear functional tests, consistent with OECD guidance, will be necessary to delineate jurisdictional boundaries while avoiding duplication of supervision.

The suggested platform for product testing – the IRTG on FinTech and the IoRS

The OECD recommends that countries adopt a *sequenced* approach to tokenisation, starting with definitional clarity and sandbox experimentation, followed by phased expansion into mainstream markets.[32] India's trajectory should follow this approach.

The Inter-Regulatory Technical Group on FinTech ("**IRTG on FinTech**") has representatives from multiple financial regulators – namely, the RBI, SEBI, IRDAI, PFRDA, and IFSCA (collectively, the "**IRTG Regulators**"). The IRTG on FinTech is chaired by the Chief General Manager of the FinTech Department, RBI, with representation from each of the other financial sector regulators, as well as one representative each from the Department of Economic Affairs ("**DEA**") and the Ministry of Electronics and Information Technology ("**MeitY**").[33]

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23 OECD Going Digital Toolkit Note: Understanding the tokenisation of assets in financial markets (OECD Publishing, 2021).

24 EY, 'India@100: Reaping the Demographic Dividend' (11 April 2023) https://www.ey.com/en_in/insights/india-at-100/reaping-the-demographic-dividend accessed 22 September 2025.

25 As of 2024, India had over 100 crore smartphone users, over 88.6 crore internet users, and an average internet cost of ~0.16 USD per GB. Inc42, *State of Indian Fintech Report 2025* (July 2025) 3 https://asset.inc42.com/2025/07/State-of-Indian-Fintech_Report.pdf accessed 1 November 2025.

26 Press Information Bureau, 'Nine Years of Startup India With 1.59 Lakh Startups, India Is Now World's 3rd Largest Startup Ecosystem' (15 January 2025) https://www.pib.gov.in/PressReleasePage.aspx?PRID=2093125 accessed 22 September 2025.

27 See Statements by Mr. Ajay Kumar Choudhary, Non Executive Chairman and Independent Director, NPCI. FintechBizNews, 'India's Journey in Fintech Is a Story of Vision, Resilience and Adaptability: Choudhary' (29 August 2024) https://www.fintechbiznews.com/fintech-technology/indias-journey-in-fintech-is-a-story-of-vision-resilience-and-adaptability-choudhary accessed 22 September 2025.

28 OECD Going Digital Toolkit Note (n 23).

29 OECD Regulatory Approaches to the Tokenisation of Assets (n 1).

30 International Financial Services Centres Authority Act, 2019, s. 12.

31 OECD Regulatory Approaches to the Tokenisation of Assets (n 1).

32 OECD Going Digital Toolkit Note (n 23).

33 RBI (Notification/Direction dated 12 October 2022) https://rbidocs.rbi.org.in/rdocs/Content/PDFs/IORS121020222D6F89A76B53488585EC6F0CF52A38AC.PDF accessed 30 October 2025.

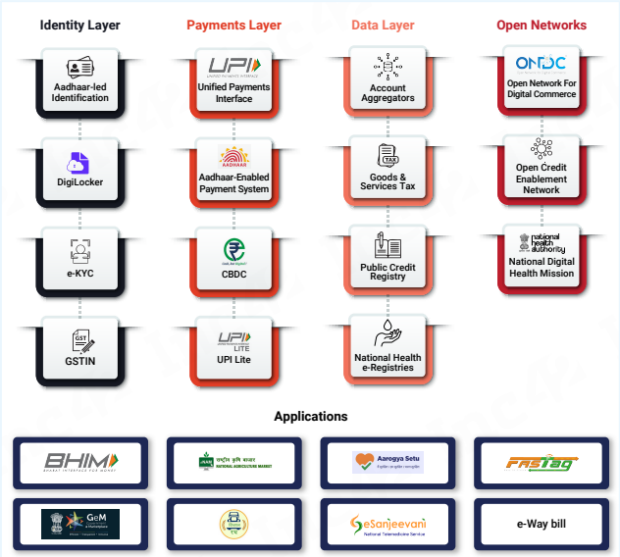
The IRTG Regulators have established an Inter-operable Regulatory Sandbox ("**IoRS**"), to facilitate testing of innovative products or services that fall within the remit of more than one of the IRTG Regulators. Under the IoRS framework, an applicant identifies the principal regulator based on the product's dominant function, while associated regulators participate in a coordinated evaluation and testing process, ensuring regulatory interoperability and reducing duplicative oversight. To keep the IoRS process simple and non-disruptive, the principal regulator conducts a detailed scrutiny of the application based on its own framework. The applicant to the IoRS must also fulfil the minimum eligibility criteria specified by its principal regulator. The principal regulator then coordinates with the associated regulators regarding the features of the product that fall under their remit.[34]

The IRTG on FinTech serves as an effective platform for fostering regulatory coordination and developing common positions among financial sector regulators. Any issues of alignment or divergence between the principal regulator and the associate regulator in determining the appropriate regulatory treatment of innovative products, services, or business models are to be deliberated and resolved within the IRTG on FinTech prior to the commencement of live testing under the IoRS.[35]

Digital public infrastructure and a Favourable Regulatory Climate

India follows a unique model of setting up democratised technological infrastructures. Certain identified governmental/ regulatory bodies develop digital infrastructure in the public interest, and the private sector builds innovative products on that platform.[36] DPI has boosted FinTech innovation in India.[37] See Figure 24, which sets out the various layers of India's digital public infrastructure ("**DPI**"), collectively termed the 'India Stack'.

Figure 24 The India Stack - India's digital public infrastructure[38]



India's DPI (including the Aadhaar, the Unified Payments Interface ("**UPI**"), DigiLocker, India's CBDC (e-Rupee, e₹) and open networks) offers the foundational rails for identity, payments, and consent required for tokenisation.

OECD analysis also concurs that jurisdictions with advanced DPI achieve greater efficiency and scalability in tokenised markets because such infrastructure supports trusted identity verification, low-cost settlement, and auditability.[39] India's DPI can directly support regulatory objectives. Real-time identity and transaction data can enhance AML/CFT compliance, reduce fraud, and enable regulators to supervise tokenised transactions more effectively. Combined with the RBI's initiatives in digital rupee settlement and SEBI's efforts to modernise depository systems, the DPI framework places India among the few major economies capable of implementing tokenisation at a national scale.

34 Ibid.

35 Ibid.

36 Press Information Bureau, 'Prime Minister Shri Narendra Modi Addresses the Global Fintech Fest 2025 in Mumbai' (9 October 2025) https://www.pib.gov.in/PressReleasePage.aspx?PRID=2176893 accessed 22 September 2025.

37 Shri Sanjay Malhotra, Governor, RBI has even termed India's DPI as the "engine for India's growth story". Reserve Bank of India, 'Driving Inclusive and Sustainable Growth Through Digital Public Infrastructure and FinTech: Keynote Address by Shri Sanjay Malhotra, Governor, Reserve Bank of India, at the Global Fintech Fest 2025, Mumbai' (10 October 2025) https://fintech.rbi.org.in/FS_Speeches?prid=1525&fn=2765 accessed 1 November 2025; Inc42 Report (n 25) 9.

38 Inc42 Report (n 25) 9.

39 OECD Going Digital Toolkit Note (n 23).

Favourable Regulatory Signals

India's tokenised asset market is at a nascent stage. Limited market players are already active in the Indian tokenised asset space, particularly in real estate. These platforms operate under varying degrees of regulatory oversight, with some participating in IFSCA regulatory sandboxes and others in unregulated or lightly regulated environments.[40] Going forward, regulatory signals will play a critical role in shaping market confidence and investment.[41] Recent regulatory activity signals increasing openness to tokenisation:

- **IFSCA** set up an 'Expert Committee on Asset Tokenisation' on November 12, 2023. The committee's February 2025 consultation paper indicates a regulatory intent to develop a comprehensive framework for real-world asset tokenisation in GIFT City.[42]
- **SEBI** has introduced a framework for fractional ownership platforms in the context of real estate (the SM REITs construct) and is exploring products offering fractional ownership of shares (maintained at the depository level) as part of its sandbox initiative.[43]
- **RBI** is piloting settlement of transactions in government securities and of inter-bank lending and borrowing in the call money market by using wholesale CBDC – allowing for real-time settlement of interbank trades.[44] Recently, the RBI announced the conceptualisation of the Unified Markets Interface, which "*will have the capability to tokenise financial assets and settlements using wholesale CBDC*"[45]. Alongside this announcement on October 8, 2025, the RBI announced a new pilot to tokenise certificates of deposits.[46] Basis information available in the public domain, the RBI is also exploring the potential of tokenising money market instruments, including commercial papers.[47]
- **National Payments Corporation of India** ("**NPCI**") expressed a positive sentiment, recognising asset tokenisation as a "*transformational opportunity*" to unlock the potential of digital assets through fractional ownership and global accessibility.[48]

There is a growing regulatory comfort with token-based instruments in India. On the flip side, tokenisation introduces a spectrum of risks that require careful regulatory calibration. Key vulnerabilities include operational risks (scalability, settlement finality, interoperability, cyber threats), governance challenges (accountability, absence of a single point of responsibility), legal uncertainties (ownership, enforceability of smart contracts, property rights), and compliance concerns (AML/CFT, data protection, consumer protection).[49] Financial regulators in India prioritise the safety of the retail investors/ users of financial products.[50]

In recent years, the financial regulatory sentiment in India has evolved. Regulators are shifting away from restricting token-based products to actively developing DPI that enables safe innovation. This approach seeks to (a) design regulated, interoperable products that offer retail investors credible, publicly supervised alternatives to unregulated instruments; and (b) establish clear regulatory guardrails so that operational, legal, and consumer risks are effectively mitigated. The underlying policy shift reflects confidence that the risks in asset tokenisation are manageable, provided that strong governance, standard-setting, and supervisory mechanisms are built into the ecosystem.[51]

40 Ibid.
41 Anutosh Banerjee, Julian Sevillano and Matt Higginson, with Donat Rigo and Garry Spanz, *From Ripples to Waves: The Transformational Power of Tokenizing Assets* (20 June 2024) https://www.mckinsey.com/industries/financial-services/our-insights/from-ripples-to-waves-the-transformational-power-of-tokenizing-assets accessed 8 August 2025.
42 IFSCA Consultation Paper (n 18).
43 SM REITs are discussed in detail in Chapter 2 above. SEBI, *Consultation Paper on Framework for Small and Medium REITs* (May 2024) https://www.sebi.gov.in/reports-and-statistics/reports/may-2024 accessed 13 October 2025; Moneycontrol, 'SEBI Greenlights Pilot for Fractional Shares via Innovation Sandbox: Report' (14 October 2024) https://www.moneycontrol.com/news/business/sebi-greenlights-pilot-for-fractional-shares-via-innovation-sandbox-report-13348184.html accessed 1 November 2025.
44 Reserve Bank of India, Concept Note on Central Bank Digital Currency (October 2022) https://rbi.org.in/Scripts/PublicationReportDetails.aspx?UrlPage=&ID=1218 accessed 13 October 2025.
45 Malhotra, Sanjay, Driving inclusive and sustainable growth through digital public infrastructure and FinTech (Keynote address by the Governor of the Reserve Bank of India at the Global Fintech Fest, Mumbai, 8 October 2025) BIS-Central Bankers' Speeches https://www.bis.org/review/r251014b.pdf accessed 30 October 2025.
46 Ibid; Business Standard, 'RBI's Deposit Tokenisation Pilot to Run alongside CBDC-Wholesale' (8 October 2025) https://www.business-standard.com/economy/news/rbi-deposit-tokenisation-pilot-cbdc-wholesale-digital-tokens-oct8-125100700532_1.html accessed 1 November 2025; Manoj Kumar and Nupur Anand, 'Indian Central Bank to Launch Pilot for Deposit Tokenisation, Official Says' *Reuters* (7 October 2025) https://www.reuters.com/world/india/indian-central-bank-launch-pilot-deposit-tokenisation-official-says-2025-10-07/ accessed 1 November 2025.
47 Kumar and Anand, (n 46).
48 Ashish Kots, *Understanding Asset Tokenization to Unlock Digital Asset Potential*, NATIONAL PAYMENTS CORPORATION OF INDIA, https://www.npci.org.in/blog/understanding-asset-tokenization-to-unlock-digital-asset-potential (last visited Aug. 8, 2025).
49 Refer to our analysis in Chapter 3 above. See also FSB, The Financial Stability Implications of Tokenisation (22 October 2024).
50 Retail user safety is a fundamental objective or mandate of the financial regulators in India. For example, SEBI has a duty to "protect the interests of investors in securities" under Section 11(1) of the SEBI Act.
51 (n 1).

Design Considerations

Guidance Note 1: Smart contracts

Smart contracts are a prominent technological implementation for tokenisation. Smart contracts must be afforded express legal recognition (*albeit* not a blanket legal recognition), clarifying that they are as binding as any other contracts.[52] To this end, this paper proposes the following definition of a 'smart contract':

A 'smart contract' includes any contract in an electronic mode deployed on a programmable platform, where the terms of the agreement between parties are expressed as a computer program or code and the performance of such contract is automated upon the happening or non-happening of a pre-determined event, collateral to such contract.

Salient features of this definition:

- Clarifies that a 'smart contract' must first be a 'contract'. This ties the term 'smart contracts' back to the principles of validity of contracts codified under the Contract Act 1872.
- Inclusive definition which can be widened by the judicial process to accommodate future technological developments.
- Aligned with the definition of tokenisation used in this paper.
- Automatic execution on the happening or non-happening of predetermined events.
- Similarly worded to the definition of 'contingent contracts' under Section 31 of the Contract Act 1872.

The guidance note may consider adopting the above definition of a 'smart contract'. The guidance note must expressly state that smart contracts may be legally enforceable, provided they satisfy the essential conditions for a valid contract as set out under the Contract Act 1872.

To promote enforceability and mitigate uncertainties surrounding the use of smart contracts in tokenisation platforms, the guidance note can recommend the below best practices and safeguards:

(a) **Adopting a hybrid contractual model**. *Consensus ad idem*[53] is essential for the validity of a contract under the Contract Act 1872. To achieve *consensus ad idem,* the parties must "*agree upon the same thing in the same sense*".[54] Where a smart contract exists solely in the form of a computer program or code, parties may face evidentiary difficulties in proving that they had reasonable notice of, and understood, the terms embedded within the code, particularly in transactions involving retail or less technologically sophisticated users.[55] To address this, tokenisation platforms may adopt a hybrid contractual model, wherein the terms of the smart contract are supplemented by traditional, legible contractual documents accessible to all parties. In the event of inconsistency between the code and the accompanying document, the latter should take precedence, as it more reliably captures the parties' intention.[56] This approach does not undermine the validity of purely code-based smart contracts. It rather recognises that the enforceability of smart contracts may depend on demonstrating *consensus ad idem* in judicial processes.

(b) **Provide for failures in case of dependency on third parties**. Where the performance of a smart contract depends on external triggers (such as data feeds from oracles, bridges, or third-party service providers), the contract must explicitly specify the legal and operational consequences of failure or inaccuracy on the part of such third parties. This would reduce ambiguity regarding risk allocation and recourse in the event of technological or data-related failures.

(c) **Clarity on applicable law and jurisdiction for enforcement**. Given the cross-border or decentralised nature of tokenised systems, smart contracts must expressly provide for the governing law and jurisdiction to ensure clarity regarding the adjudication of disputes and the enforcement of rights.

(d) **Independent technical audits**. Smart contracts deployed on tokenisation platforms may be made subject to periodic independent third-party audits to identify and address potential vulnerabilities or logical errors in the computer program or code. Such audits may enhance investor confidence and reduce systemic risk in tokenised ecosystems.

(e) **Consider human intervention.** While automation enhances efficiency, smart contracts can consider incorporating mechanisms for human intervention, including the ability to suspend or terminate performance in exceptional circumstances.

52 For a detailed discussion on the validity of smart contracts in India, refer to the section titled 'Validity of smart contracts in India' of Chapter 2.

53 Literally, "meeting of minds".

54 Contract Act 1872, s. 13.

55 Smart Contracts Alliance & Deloitte, 'Smart Contracts: 12 Use Cases for Business & Beyond: A Technology, Legal & Regulatory Introduction' (The Chamber of Digital Commerce 2016) 10 accessed 10 October 2025.

56 This approach has been suggested by Niti Aayog. See NITI Aayog, Blockchain: The India Strategy – Part I (Draft Discussion Paper, January 2020) https://www.niti.gov.in/sites/default/files/2020-01/Blockchain_The_India_Strategy_Part_I.pdf accessed 30 October 2025.

Providing parties with limited control over real-world outcomes helps mitigate losses and enhances resilience against unintended or undesirable execution results.[57]

Guidance Note 2: Programmable platform

The guidance note may consider adopting the taxonomy of programmable platforms proposed in this paper. A 'programmable platform' refers to a digital infrastructure that maintains a flexible ledger of asset positions and allows for the embedding of smart contracts. These smart contracts automate the creation, transfer, and redemption of tokens. **A 'programmable platform' is the platform on which tokens are issued, and which serves as the technological medium for recording and verifying ownership, possession, or other contractual rights that are tokenised.** In essence, it functions like a physical ledger, with one key distinguishing feature: it is programmable.

There are four main forms of programmable platforms, ranging from the most centralised to the most decentralised: (a) fully centralised; (b) private permissioned; (c) public permissioned; and (d) public permissionless digital ledger networks.[58] Adopting this taxonomy within the guidance note would enable a consistent regulatory vocabulary to describe differing governance and access models underpinning tokenisation infrastructure.

The first consideration for this design choice is ensuring AML/KYC compliance. Tokens are VDAs. Multiple entities involved in the tokenisation lifecycle will qualify as VASPs, including entities that issue the tokens, operate the programmable platform (thus facilitating the transfer of VDAs), etc. The infrastructure of the programmable platform must encourage compliance at both the international level (FATF Guidance) and the domestic level (the GoI notification dated March 7, 2023; PMLA 2002; and the FIU-Ind Guidelines 2023), in both the letter and the spirit. Money laundering and financing of terrorism risks are prominent in DLT-based systems and are particularly high in tokenised markets based on public, permissionless networks.[59]

The second consideration for this design choice is addressing governance risks. Governance risks of fully decentralised ledgers arise from the difficulty in identifying a sole owner or node accountable for the full network. The absence of a single accountable point poses a significant challenge to regulating DLT networks and assigning responsibility for network failures.[60] Thus, the programmable platform must have mechanisms for the reliable identification of the parties involved in the transfer of tokens (the originator and the beneficiary, in compliance with the 'travel rule'), as well as the operators of the programmable platform (the VASPs).

Thirdly, on the operational side, these programmable platforms must have a scalable infrastructure. Tokenised financial markets require high throughput and predictable latency[61]

Tokenisation initiatives in financial services continue to rely **predominantly on private permissioned and public permissioned programmable platforms**, reflecting the need for controlled participation, clear accountability, and robust AML/CFT compliance frameworks. Both these environments provide risk-managed settings for early adoption.[62]

Even where permissionless chains are adopted, **access and compliance requirements are typically shifted to the application or asset layer** and **not removed** altogether. The KKR tokenised feeder fund on Avalanche illustrates this. Although Avalanche operates as a permissionless network, investment into the KKR Health Care Strategic Growth Fund requires onboarding through Securitize (including KYC, AML, and accreditation checks)[63]. Similarly, Deutsche Bank had proposed a permissioned zero-knowledge Layer 2 on Ethereum to meet its KYC/AML requirements[64]. Institutional use of public

57 Michel Cannarsa, 'Contract Interpretation', in Larry A Dimatteo, Michel Cannarsa and Cristina Poncibo (eds), The Cambridge Handbook of Smart Contracts, Blockchain Technology and Digital Platforms (Cambridge University Press 2020) 116.

58 Refer to Chapter 1 above for a detailed description of each type of programmable platform.

59 OECD Going Digital Toolkit Note (n 23) 6.

60 Ibid.

61 Ibid.

62 Bank for International Settlements, *Novel Risks, Mitigants and Uncertainties with Permissionless Distributed Ledger Technologies* (2024) 24 https://www.bis.org/bcbs/publ/wp44.pdf accessed 28 November 2025; OECD, *Tokenisation of Assets and Distributed Ledger Technologies in Financial Markets* (2025) 18 https://www.oecd.org/content/dam/oecd/en/publications/reports/2025/01/tokenisation-of-assets-and-distributed-ledger-technologies-in-financial-markets_be149012/40e7f217-en.pdf accessed 28 November 2025.

63 CoinDesk, 'Investment Giant KKR Puts Portion of Private Equity Fund on Avalanche Blockchain' (13 September 2022) https://www.coindesk.com/business/2022/09/13/investment-giant-kkr-puts-portion-of-private-equity-fund-on-avalanche-blockchain accessed 22 September 2025.

64 Ryan Weeks, 'Deutsche Bank Tries to Tackle Compliance Hurdles for Public Blockchains' *Bloomberg* (18 December 2024) https://www.bloomberg.com/news/articles/2024-12-18/deutsche-bank-tries-to-tackle-compliancehurdles-for-public-blockchains accessed 22 September 2025.

chains depends on making the application permissioned – albeit by embedding compliance, identity gating, and asset-level controls within the smart contract stack, rather than relying on platform-wide restrictions.[65]

Taken together, these developments point to a clear directional view: asset **tokenisation today is occurring primarily on permissioned programmable platforms, whether private or public**. Experiments on permissionless networks are emerging, but they are not "open" in the traditional sense. Institutions overlay application-level whitelisting, identity checks, and issuer-defined transfer controls to satisfy regulatory obligations. In practice, the distinction between permissioned and permissionless becomes less about the base layer and more about where and how compliance, governance, and control are encoded.

In practice, permissioned architectures remain the natural starting point, offering clear lines of accountability, predictable scalability, and controlled participation. Over time, however, any sufficient programmable platform (whether permissioned or permissionless) can support regulated financial activity provided that it addresses the DLT-specific and scalability risks and that robust KYC/AML checks are completed before any transaction or movement of funds. Effectively, what matters is that accountability and compliance are embedded into the architecture, irrespective of the underlying type of programmable platform. At this stage, **a permissioned programmable platform is most optimal** in the Indian context.

Guidance Note 3: Settlement assets - Building rails with e-Rupee (e₹)

The full benefits of asset tokenisation materialise only when payment rails are natively integrated within the programmable platform. This integration enables atomic settlement (on a DvP basis), eliminating the time gap between the transfer of assets and corresponding cash payments, and significantly reducing counterparty and settlement risk.[66]

Using a 'tokenised form of the central bank's currency' for payments can help avoid long processing times and high fees associated with off-platform intermediaries.[67] 'Tokenised central bank currency' can be of two forms: (a) the wholesale CBDC issued and settled directly by the central bank; and (b) on-platform tokens that represent central bank money[68]. Project Helvetia Phase III illustrates this dual model: initial bond settlements were conducted using the Swiss National Bank's wCBDC, while subsequent coupon and redemption payments used tokenised Swiss francs (tCHF) on the SDX. As a third alternative, programmable platforms can interoperate with existing real-time or instantaneous payment systems.[69] In this '*synchronised-settlement*' model, the cash leg does not settle on the programmable platform but is synchronised with payments made through established infrastructures such as RTGS or other instant-payment networks. The platform initiates a corresponding payment instruction externally and, upon confirmation of settlement in fiat currency, automatically finalises the on-platform asset transfer, keeping both legs of the transaction temporally aligned. Leveraging such high-speed payment rails enables near-instantaneous settlement and preserves the safety of central-bank money without the need to immediately introduce a CBDC or tokenised currency instrument.

In India, the CBDC (e-Rupee, e₹), particularly its wholesale form, is well-positioned to act as the settlement asset for tokenised transactions, particularly for securities tokens, allowing atomic settlement. Alternatively, the synchronised-settlement model can serve as a transitional framework, utilising existing RTGS and UPI infrastructures to deliver many of the efficiency and risk-reduction benefits of atomic DvP until the e₹-W is fully operational.

Recent developments indicate that the RBI is actively laying the groundwork for such settlement capabilities. The RBI has begun piloting wholesale CBDC for the settlement of transactions in government securities as well as for inter-bank lending and borrowing in the call money market, enabling real-time settlement of interbank trades. It has also announced the conceptualisation of the Unified Markets Interface, which will have the ability to tokenise financial assets and facilitate settlement using wholesale CBDC. Alongside this, a new pilot has been launched to tokenise certificates of deposit, and publicly available information suggests further exploration of tokenising money-market instruments, including commercial paper. These initiatives collectively reflect a forward-leaning approach to developing the payment and settlement infrastructure required for a tokenised financial ecosystem.

65 Bank for International Settlements, *Novel Risks, Mitigants and Uncertainties with Permissionless Distributed Ledger Technologies* (2024) 24 https://www.bis.org/bcbs/publ/wp44.pdf accessed 28 November 2025; OECD, *Tokenisation of Assets and Distributed Ledger Technologies in Financial Markets* (2025) 18 https://www.oecd.org/content/dam/oecd/en/publications/reports/2025/01/tokenisation-of-assets-and-distributed-ledger-technologies-in-financial-markets_be149012/40e7f217-en.pdf accessed 28 November 2025.

66 OECD, Tokenisation of Assets and Distributed Ledger Technologies in Financial Markets (n 2) 14.

67 Ibid.

68 This is a fiat-backed stablecoin and (unlike wholesale CBDCs) is not a direct claim on the central bank. It is conceptually similar to a closed-system prepaid payment instrument, where the fiat currency is transferred to a settlement account, and then the platform automatically creates tokenised currency backed 1:1 by these funds. This tokenised fiat currency is credited to the user's wallet and can be used within the platform to purchase tokens by instantaneously transferring the tokenised fiat currency.

69 OECD, Tokenisation of Assets and Distributed Ledger Technologies in Financial Markets (n 2) 14.

Guidance Note 4: Operating hours - Not mandating 'always-on' infrastructure

A continuous, real-time operational model aligns with India's DPI and enhances efficiency in tokenised markets. Tokenisation inherently enables near 'always-on' functionality. However, it is preferable to treat 'always-on' infrastructure as a design choice rather than a regulatory mandate/standard, to be determined on a case-by-case basis for each programmable platform.

Taxonomy for Asset Tokenisation

Guidance Note 1: Asset tokenisation and tokens

The term 'tokenisation' lacks a universally accepted definition. Broadly, tokenisation is the act of translating economic value, ownership or contractual claims into a digitally native format capable of circulation on a shared record-keeping infrastructure. Tokenisation goes one step beyond mere digitalisation. It creates a digital embodiment of an asset or entitlement in such a manner that the token becomes the operative medium through which ownership, possession or contractual rights are evidenced and transferred. Asset tokenisation refers to the process of creating a digital representation, while a token is the resulting output.

A clear legal taxonomy is a necessary precursor to effective regulation. To provide regulatory clarity, this paper proposes the following definitions of 'asset tokenisation' and 'tokens':

'Asset Tokenisation' means the process of creating a digital representation of value, rights, or claims on a programmable platform, whether in relation to a pre-existing reference asset or otherwise, to enable secure and verifiable ownership and to facilitate transferability, in a manner that is enforceable in accordance with applicable law.

A 'Token' is a digital representation created through Asset Tokenisation, which represents the corresponding value, right, or claim.

Salient features of the above definitions:

- Covers both 'asset-backed tokens' and digitally 'native tokens'.
- Clarifies that asset tokenisation refers to the process of creating a digital representation, while a token is the resulting output. It highlights that tokenisation is not an asset class in itself, but rather is a mode of representation, through which existing or new rights are recorded, transferred, and/or enforced.
- It is technologically neutral and highlights programmability. It refers to a 'programmable platform' rather than any specific technology (blockchain or DLT).
- The terms 'value', 'rights', and 'claims' could refer to a wide range of economic, legal, proprietary, and contractual interests.
- Clarifies that verifiable ownership and lawful transferability are defining characteristics of tokenised assets.

The guidance note may consider adopting the above definitions of 'asset tokenisation' and 'tokens'. Further, the **guidance note must clearly state that tokens are considered property. Tokens can be made subject to the 'control of' and offer proprietary rights to their owner, similar to traditional (real-world) properties. Control over the token implies three rights: exclusion, title, and transferability.** The owner of the token who controls the token would have (a) the exclusive ability to prevent others from obtaining substantially all of the benefit (i.e., the underlying value and the rights) of the tokens, (b) the ability to obtain substantially all the benefit from the tokens, and (c) the exclusive ability to change the control of the token or transfer the token to another person. Furthermore, the guidance note must explicitly acknowledge the connection between the transfer of tokens and their impact on the underlying value, rights, and claims. **Transferring a token equates to transferring the value, rights, and claims that the token represents.**

Digital tokens require a new legal construct for possession and control. The **guidance note can explicitly recognise that control of a token through a custodian constitutes possession for purposes of property law, secured transactions, and insolvency. This recognition underpins enforceability, collateralisation, and priority of rights, enabling the use of tokenised assets in credit and finance.**

Guidance Note 2: Four-part taxonomy

The guidance note can consider adopting the four-part taxonomy of tokens proposed in this paper[70]. Based on the use case and the nature of the underlying reference asset, tokens can be classified into the below four categories. Note that payment tokens (which are primarily used for transaction settlement and payment purposes and utility tokens) fall squarely within the regulatory domain of the RBI and are excluded from the scope of this paper.

- securities tokens - a new form of representation of existing securities;

70 Refer to Chapter 1 and Chapter 3 for a detailed description of each category of tokens.

- investment tokens - which grant only a financial interest in the underlying reference assets without conferring direct ownership; and
- ownership token - which grants direct ownership in the underlying reference asset.

The proposed four-part taxonomy of tokens, based on the tokens' intended economic function, draw inspiration from the Swiss functional classification under the 2018 FINMA Guidelines. **Determining which of the four categories a particular token issuance falls into is a fact-specific determination, dependent upon the specific structure, features, and underlying rights associated with the token in question. This requires analysis on a case-by-case basis.**

Guidance Note 3: Securities tokens

Drawing on the EU's differentiated regulatory treatment under MiFID II (for traditional financial instruments) and MiCA (for other crypto-assets), India may adopt a parallel distinction between securities tokens and the remaining categories of asset tokens.

Securities tokens are a digital representation of the value, rights and claims associated with existing capital market instruments, created through the process of asset tokenisation. The reference asset for a securities token is a financial instrument that is available for investment in the Indian capital markets, meaning it is currently recognised and regulated by one of the financial services regulators in India.

Accordingly, this paper proposes the following definition of a 'securities token':

A 'Securities Token' means a token created through Asset Tokenisation which constitutes an exact digital representation of any 'securities', as per the **(Indian) Securities Contracts (Regulation) Act, 1956**.

The guidance note may consider adopting the above definition of 'securities tokens'. The guidance note must also clarify that tokens that are not exact representations of existing securities will not be classified as a securities token. A token representing fractional ownership of an existing security or a token that is 'linked' to a security but does not capture all value, rights and claims associated with the security would fall outside the scope of securities tokens.

Additionally, the guidance note must strongly recommend that securities tokens be issued as digitally native tokens, recorded directly on a programmable platform, without any underlying physical certificate or reference asset. A securities token will simply be a newer form of securities. Restricting the issuance of securities tokens as digitally native tokens reduces the risk of price bifurcation and arbitrage.

The guidance note must clarify that such securities tokens will attract the regulatory requirements applicable to traditional securities issuances in India. The principle of 'same risk, same regulation' would apply. Such tokens would be governed by the SCRA 1956, the SEBI Act 1992, and the regulations framed thereunder, including those relating to issuance and listing, disclosure and reporting, market conduct, and investor protection. Consequently, issuers of securities tokens must comply with the requirements for issuing a prospectus and/or offer document, making continuous disclosures, and will remain subject to the supervision of SEBI and the stock exchanges.

The guidance note can recommend that the issuance of securities tokens be supplemented by a whitepaper, serving as the primary disclosure document for investors and regulators. An effective token whitepaper must contain: (a) a detailed description of the securities' economic rights and obligations represented by the token; (b) the technical architecture, including a summary of the underlying smart contract and reference to its source code; (c) the custody and settlement mechanics; (d) applicable risk factors; (e) the redemption process; and (f) the dispute-resolution provisions. The redemption logic of each securities token can also be described in the whitepaper. For instance, tokens representing debt or other redeemable instruments can incorporate explicit redemption logic embedded within the programmable platform, linked to recognised payment systems to ensure that redemptions occur in a predictable, auditable, and legally enforceable manner.

Guidance Note 4: Investment Tokens

An 'investment token' is a token that represents a fractional share of a financial interest in a reference asset. These tokens allow investors to gain exposure to the economic performance or cash flows of an underlying reference asset, without conferring direct ownership or utilisation rights over such asset. Importantly, securities tokens (which are exact digital representations of regulated financial instruments) are expressly excluded from the scope of investment tokens.

Investment tokens, therefore, grant a right to receive financial interests linked to the underlying reference asset, such as income, yield, or appreciation, but not to possess, use, or transfer the asset itself. They are designed to provide investors with exposure

to the economic benefits derived from the reference asset, typically through programmable smart contracts that automate the flow of returns, distributions, or redemptions.

Accordingly, this paper proposes the following definition of an 'investment token':

An 'Investment Token' means a token created through Asset Tokenisation, which constitutes a digital representation of any fractional financial value, rights, or claims associated with an underlying reference asset, without conferring any direct ownership or utilisation rights in such asset; and excluding securities tokens.

The guidance note may consider adopting the above definition of 'investment tokens'. However, while the guidance note can establish a foundational taxonomy, **a regulatory framework for investment tokens would require legislative amendments/ enactments**, which are beyond the scope of such guidance.

From an Indian regulatory perspective, investment tokens involve pooling funds, with returns generated through third-party efforts. Their structure closely resembles that of a CIS, which is undesirable. The regulatory intent behind the CIS framework was protective (aimed at preventing fraudulent fund mobilisation) rather than facilitative. In this context, the CIS Regulations 1999 enforce strict compliance requirements and, in practice, have functioned as a prohibitive framework.[71]

It would be both impractical and conceptually inappropriate to subsume emerging products such as investment tokens within the CIS framework. Given that the CIS regime has not evolved into a functional regulatory pathway or a dynamic market for legitimate collective investment products, a more rational policy approach would be to develop a dedicated, fit-for-purpose regime for such investment tokens.

Accordingly, a specific regulatory carve-out excluding investment tokens from the ambit of the CIS Regulations 1999 (and towards this, the regulator could consider including them under the list of 'Identified Exceptions') would be a prudent policy consideration.

Instead, investment tokens should be included within the definition of securities under the SCRA 1956. Further, a lighter, tailored framework inspired by CIS principles but adapted to the digital token environment can be set up, which preserves core investor safeguards through targeted disclosure, transparent valuation, and orderly redemption mechanisms, while dispensing with the more onerous requirements pertaining to investment restrictions, mandatory listing, governance, net worth, and eligibility conditions applicable to conventional CIS vehicles. This tailored framework can be similar to the EU's MiCA, which establishes a bespoke framework for crypto-assets that are not already covered by existing financial legislation.

Proposed boundary conditions for the tailored framework for investment tokens

(a) **Applicability.** Governs issuance of investment tokens. Exclusions from applicability: (i) tokens qualifying as 'securities' under Section 2(h) of SCRA 1956, i.e. 'securities tokens'; (ii) the Identified Exceptions to CIS; (iii) any fully decentralised investment token issuance lacking an identifiable issuer or custodian and providing services without any regulated/ identified intermediaries; (iv) any closed-loop tokens designed for use exclusively within a closed environment where they can only be redeemed or transferred by the issuer or within a predetermined network.

(b) **Issuer legal form and registration.** The Issuer must be an incorporated limited liability company or a trust operated by an incorporated limited liability company, and must be registered with SEBI. SEBI can consider adopting a graduated or proportional oversight model based on size, complexity or systemic risk.

(c) **The Issuer must be a 'fit and proper' person**.

(d) **The Issuer must be professionally managed.** Conditions may include: (i) at least two years of relevant experience for all board and key managerial personnel ("**KMP**") level appointments; (ii) at least two KMPs with at least five years of relevant experience.

(e) **Duty to act fairly.** The Issuer must act honestly, fairly, and professionally in the interests of token holders.

(f) **Duty to market fairly, Disclaimer that no ownership rights conferred**. Marketing communications must be fair, clear, not misleading, and must not imply regulatory approval if none exists. Further, any communications published by the Issuer must also contain a disclaimer that investment tokens do not confer any ownership or utilisation rights over the reference asset itself.

(g) **Token structure, Mandatory Exit**. The investment tokens must be closed-ended products with a fixed term (less than twenty years, to be specified upfront). The issuer must mandatorily give an exit to the holders of the investment tokens after the expiry of the fixed term.

71 Refer to the section 'Tokens as units of a CIS' in Chapter 2 and the sections titled 'Overlap with existing regulated securities' and 'Regulatory amendments needed' in Chapter 3.

(h) **Mandatory disclosures, through a whitepaper**. Impose initial and ongoing disclosure obligations on issuers of investment tokens. Issuers must publish a public white paper prior to the issuance of the investment tokens with detailed information on (i) the details of the issuer, (ii) token economics, including details of the underlying reference asset, the financial interest granted to the holders of the tokens, the rights/ obligations of the holders of the investment tokens, (iii) the valuation methodology, (iv) the redemption/exit mechanics specifying how holders of investment tokens may realise value, exit, or be redeemed; and (v) the fees paid by the issuer and the expenses charged to the holders of the investment tokens. The disclosure regarding redemption/exit must also specify timeframes, penalties, and residual rights in case of default. The Issuer must also publish periodic reports on the adequacy of its reserves and the valuation of the investment tokens.

(i) **Third-party certifications**. Conditions may include: (i) an independent trustee must verify and certify the existence of the underlying reference assets and confirm the associated financial value, rights, or claims; (ii) verify initial valuation of the underlying reference assets; and (iii) Issuers must appoint an independent auditor to validate cashflow data and ensure the integrity of the embedded smart contracts and the oracles feeding on-platform information and triggering payments to token holders.

(j) **Automated payments, disclosure in case of non-payment event**. Distribution of any income accruing to the holders of the investment tokens must be done automatically via smart contracts, with full off-platform audit trails. The Issuer must also make public disclosures and send intimations to SEBI in the event of any failure to make timely payment or otherwise redeem the investment tokens in the manner disclosed in the white paper.

(k) **Minimum Issuer holding and lock-in.** Impose a minimum issuer holding of investment tokens and a mandatory lock-in period to ensure adequate 'skin in the game'. It is suggested that the issuer be required to maintain a minimum holding of between 5% and 15%, which may be progressively reduced over time based on the duration of the investment tokens. For instance, there can be a 1% reduction in the mandatory holding period for each year between the tenth and twentieth years for investment tokens with a fixed term of twenty years.

(l) **Operational resilience and risk management**. The Issuer must ensure the operational resilience and security of its programmable platform's infrastructure. Conditions may include an annual independent third-party audit of the operational resilience of its programmable platform's infrastructure. The Issuer must also have in place board-approved business continuity plans and risk management frameworks for the investment tokens it issues.

Guidance Note 5: Ownership Tokens

An 'ownership token' is a token that represents proprietary ownership or utilisation rights in a pre-identified reference asset. These tokens are a subset of asset tokens, where the token itself is the operative medium for evidencing, transferring, and enforcing fractional, undivided interests in the underlying reference asset on the programmable platform.

Ownership tokens provide direct, programmable, and transferable ownership or defined utilisation rights, as opposed to investment tokens, which provide mere economic exposure. Importantly, securities tokens (which are exact digital representations of regulated financial instruments) are expressly excluded from the scope of ownership tokens.

Accordingly, this paper proposes the following definition of an 'ownership token':

An 'Ownership Token' means a token created through Asset Tokenisation, which constitutes a digital representation of ownership, possessory, or utilisation rights in a reference asset, conferring upon its holder a direct interest in such reference asset; and excluding payment tokens, securities tokens and investment tokens.

The guidance note can adopt the above definition of 'ownership tokens'. The guidance note must further clarify that **the transfer of an ownership token constitutes an outward expression of a person's intention to deal with their proprietary and fractional ownership interest of the underlying reference asset**. Thus, **any transfer of the ownership token also implies a nearly simultaneous transfer of the corresponding ownership and utilisation rights in the underlying reference asset**.

The guidance note must clarify that **the regulatory approach is to 'look through' the ownership tokens** and view them merely as a fractional ownership in the underlying reference asset. Accordingly, in the absence of a bespoke framework governing ownership tokens, **any transaction (including transfers or creation of a security interest over the ownership tokens) must comply with the applicable Indian laws governing the corresponding transfer of the underlying reference asset**. Further, ownership tokens will typically not be classified as 'securities' under Indian law.

Further, the value of each ownership token is intrinsically tied to the value of the corresponding ownership in the reference asset. Custody of the reference assets is thus a central element: the reference asset must be immobilised with a trusted custodian or trustee to prevent duplicative issuances and to ensure that tokens remain constantly and verifiably backed by the underlying asset.

Framework for ownership tokens

The legal framework for ownership tokens will largely depend on the nature of the underlying asset. A regulatory framework will need to provide for custody of the reference asset (for non-native tokens) and the role of the intermediaries. Exclusions from applicability could include: (i) tokens qualifying as 'securities' under Section 2(h) of SCRA 1956, i.e. 'securities tokens' and 'investment tokens'; (ii) the Identified Exceptions to CIS; or (iii) any closed-loop tokens designed for use exclusively within a closed environment where they can only be redeemed or transferred by the issuer or within a predetermined network.

Intermediaries

Guidance Note 1: Custody of tokens

Tokenisation enables flexible custodial arrangements – ranging from full custody to user-held structures.[72] This flexibility allows participants to calibrate the level of security, recoverability, and autonomy according to their regulatory obligations and risk preferences.

Custody of tokens requires a dedicated regulatory framework, distinct from the regime governing depositories and custodians in traditional securities markets. Although conceptually similar in their function of safekeeping and record maintenance, token custodians perform technologically distinct roles that demand advanced digital asset management capabilities. These custodians are expected to manage private keys to wallets holding asset tokens on behalf of users, ensuring secure storage, controlled access, and verifiable transfer. Accordingly, only licensed entities authorised by the relevant financial services regulator should be permitted to act as token custodians. Such entities must be technology-first institutions, with expertise in cryptographic key management. The regulator may prescribe minimum capitalisation thresholds, governance standards, and operational norms under a separate, tailored framework for token custodians to ensure financial soundness and operational integrity.

Custodians of tokens are responsible for the safekeeping of clients' tokens, restricting unauthorised access or control, processing and settling transactions, and servicing tokens across multiple markets. Their functions include maintaining secure custody infrastructure, managing transaction authentication, ensuring compliance with anti-money laundering and counter-terrorism financing norms, and facilitating redemption or exit processes. Custodians also play a key role in cybersecurity risk management, helping investors mitigate risks of hacking, key loss, or technical failure. In doing so, they contribute to overall market stability and investor confidence in tokenised ecosystems.
A key differentiating feature of hosted or embedded custody models is their recoverability, which provides critical protection to retail users. In the event of fraud, theft, loss of private keys, or erroneous transfer of asset tokens to unintended addresses, a hosted or embedded custodian can facilitate key recovery and, where technically feasible, rectify mistaken transactions. Accordingly, a hosted or embedded custody model should be considered the default design choice in the Indian context. Each issuer of asset tokens must be required to partner with at least one licensed token custody provider. Nevertheless, user autonomy should be preserved by allowing individuals to opt out of the default model and choose alternative custody arrangements, depending on their technical sophistication and risk tolerance.

Separately, given that 'control' over asset tokens may be construed as a form of ownership, it is critical to provide legal certainty that tokens held in custody remain segregated from the custodian's own assets. If a custodian enters insolvency, the asset tokens that it maintains for clients under a custody arrangement must be excluded from the custodian's insolvency estate and must not be available to satisfy the custodian's creditors. Rights that the custodian holds against sub-custodians in respect of client asset tokens must be similarly protected. The custodian's duties to its clients must also continue to apply throughout the insolvency process.

Guidance Note 2: Security creation over tokens

Enabling an operational framework for security marking and pledge creation.

AML/KYC compliance

Guidance Note 1: Compliance with VDA framework

Asset tokens are VDAs. **Multiple entities involved in the tokenisation lifecycle will qualify as VASPs**, including entities that issue the tokens, operate the programmable platform (thus facilitating the transfer of VDAs), etc. Pursuant to the FIU-Ind Guidelines 2023, **every VASP operating in India needs to: (a) register with the FIU-Ind; (b) adopt the prescribed KYC**

72 Refer to the section titled 'Custody of tokens' of Chapter 1.

verification processes to verify the identity of users at the time of onboarding; and (c) comply with PMLA requirements (e.g., maintaining transaction records for a period of 5 years, reporting suspicious transactions and specified transactions to the FIU-Ind).

Taxation model

Guidance Note 1: Taxation

Tokens are VDAs.[73] The **30% flat tax on VDA transfers[74] is a significant barrier** for tokenisation platforms in India. The high tax bracket was originally designed to discourage speculative trading gains from cryptocurrencies, rather than to govern transfers of regulated token products.

A **modified tax regime for taxation of tokens along the principle of *'same activity, same regulation'* is needed**. The tax treatment of tokens could accordingly 'look through' to determine the appropriate rate of taxation:

(a) Securities tokens to be taxed upon transfer at the same rate as securities. Securities tokens are simply a new form of security.
(b) A non-prohibitive tax rate to be fixed for investment tokens.
(c) Ownership tokens to be taxed at the same rate (or preferably at a lower rate) as a real-world transfer of the underlying asset. A lower tax rate can be considered due to the higher transaction efficiency of token transfers and the consequently higher volume of ownership token transfers.

73 Refer to the section titled 'Prevention of Money Laundering Act, 2002' of Chapter 2.
74 Refer to the section titled 'ITA 1961' of Chapter 2.