



PREMJI INVEST

DIGITAL
INDIA
FOUNDATION

REPORT
THE FUTURE OF ASSET
TOKENISATION IN
INDIA

APRIL, 2026

ABOUT DIGITAL INDIA FOUNDATION

Digital India Foundation (DIF) is an independent public policy think tank working at the intersection of technology, governance, and society. DIF is led by Dr Arvind Gupta, former CEO of MyGov, a Member of the National Advisory Council of the Open Network for Digital Commerce (ONDC), and a Trustee on the Board of the National Pension System Trust, appointed by the PFRDA. Over the years, DIF has undertaken sustained research on emerging technologies and Digital Public Infrastructure, with a strong focus on financial innovation, data governance, platform regulation, and online money gaming. Through detailed reports, consultation papers, and closed-door policy engagements, DIF has contributed to shaping informed regulatory discourse across multiple sectors. Notably, DIF's research has been cited in parliamentary deliberations, including in the Lok Sabha, reflecting its relevance to real-world policymaking and regulatory outcomes. This body of work positions DIF as a trusted partner in advancing asset tokenisation and allied financial technologies in a manner that is institutionally sound, regulatorily robust, and aligned with public interest objectives.

ABOUT PREMJI INVEST

Premji Invest (PI) is a leading global investment firm with a charter to back emerging and disruptive technologies, address sizeable market opportunities and nurture the spirit of entrepreneurship. PI invests in both private and public markets. Its private investments include early-stage, growth equity, and buyouts, with focus areas spanning financial services, technology, consumer, industrials, and healthcare. The returns generated by PI primarily support the work of Azim Premji Foundation, a non-profit that works to improve the lives of the underserved and underprivileged in society. Since 2006, PI has made over 160 investments, including category-defining platforms in e-commerce, fintech, market infrastructure, and life sciences. The investment firm consistently supports technologies that democratize access to credit, commerce, and essential services within strongly regulated environments, by working with key investment portfolio companies, such as National Stock Exchange and SBI General Insurance. Along with leading global investors, Premji Invest is a founding member of India Deep Tech Investment Alliance that is focused on mobilizing over USD 1 billion in strategic deep tech sectors. This approach underscores PI's strategy to combine patient capital, policy engagement, and ecosystem building at scale, including in deep tech, generative AI, and regulated financial infrastructure. PI is committed to be a constructive, long-term partner in building a compliant, innovation-led tokenization ecosystem that can responsibly unlock fractional ownership, improve liquidity, and deepen capital formation, thereby supporting India's next phase of inclusive, technology-led economic growth.

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This report draws on wide-ranging conversations with a diverse set of contributors, including regulators, market infrastructure bodies, financial intermediaries, legal experts, technologists, and academics. Their insights, lived experience, and thoughtful critique have been central to shaping the findings and recommendations contained here.

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The views, analysis, and conclusions expressed in this report are entirely those of the authors and do not represent the positions of any individual or institution consulted in the course of this work.

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EXECUTIVE SUMMARY

Asset tokenisation is increasingly being examined globally as a way to improve how assets and asset-linked claims are issued, recorded, transferred, and settled using programmable digital infrastructure. In India, interest in tokenisation has emerged not as a response to institutional weakness or market failure, but within a financial system that is already digitally mature, regulatorily anchored, and institution-led. This context shapes both the opportunity and the limits of tokenisation.

This report approaches tokenisation not as a new asset class or a parallel financial system, but as a design choice within existing market architecture with relevance depending on asset type, lifecycle stage, legal recognition, and institutional readiness. Drawing on consultations, followed by a closed-door roundtable discussion in New Delhi, with regulators, market infrastructure institutions, financial intermediaries, technologists, academics, and legal experts, alongside global experience, the report assesses where tokenisation is already being applied, where it is realistically feasible in India, and where expectations must remain calibrated.

Within the context of India's markets being already digitised, and many processes still remaining sequential and reconciliation-heavy, tokenisation enables programmable

representations of assets and claims, allowing certain ownership, settlement, servicing, and compliance rules to be executed more consistently across the asset lifecycle. It operates within existing legal and supervisory frameworks, reducing coordination frictions without displacing intermediaries or regulatory oversight. It acts as an infrastructure-layer innovation modernizing asset ownership and claim settlement rails without displacing exchanges, depositories, or custodians.

At a macroeconomic level, these efficiencies matter because they can improve capital efficiency and credit transmission. By providing an avenue for low ticket investments, tokenisation can lower idle capital held for timing mismatches, improve collateral usability, and with reducing verification delays and coordination frictions allow assets and claims to circulate more productively within the formal financial system.

In practice, tokenisation is being adopted selectively. Five use cases emerge as both observed globally and broadly compatible with India's regulatory environment:

1. Issuance and ownership record-keeping for financial instruments

Tokenisation is being used to improve issuance processes and ownership records for instruments such as funds, bonds, and other regulated securities. Models range from on-chain mirrors to fully authoritative registers in jurisdictions with legal recognition. These approaches improve transparency and reduce reliance on fragmented transfer-agent systems without altering the legal nature of the underlying instrument.

2. Post-trade settlement and servicing efficiency

One of the most mature use cases lies in post-trade coordination. Tokenised settlement pilots demonstrate how delivery-versus-payment and servicing actions can shift from batch-based processes to event-driven execution. For India, alignment with regulated settlement rails, including wholesale CBDC initiatives, offers a conservative and feasible pathway to reduce settlement delays, liquidity lock-ups, and reconciliation overheads.

3. Controlled transfers and secondary activity in private markets

In private and pooled markets, tokenisation is being applied to enable controlled transferability rather than open trading. By embedding eligibility, consent, and timing conditions into asset representations, tokenisation can lower operational barriers to secondary transfers without promising continuous liquidity. This use case is particularly relevant for alternative investment funds, private credit, and structured products.

4. Credit, collateral, and cash-flow-linked applications

Tokenisation shows particular promise where assets and claims are used as inputs into credit and financing rather than traded as standalone investments. Receivables, mortgage-linked claims, rental cash flows, warehoused commodities, and bullion can be represented in ways that improve verification, servicing, and collateral management within regulated lending frameworks. In the Indian context, these applications align closely with MSME financing, asset-backed lending, and capital efficiency objectives.

5. Permissioned representation of physical assets for access and verification

For physical assets, especially real estate, tokenisation is not a substitute for land registries or title reform. Instead, it is being explored as a complementary layer for fractional economic exposure, auditability, and cash-flow participation, particularly for commercial and income-generating assets. Similar approaches are emerging for commodities and infrastructure-linked assets, anchored in regulated custody and permissioned environments.

Drawing on these findings, the report outlines a set of overarching recommendations to guide tokenisation in India:

- Position tokenisation as an infrastructure and coordination layer applied to existing assets, rather than as a new asset class or parallel market.
- Maintain functional separation across issuance, validation and trust functions, trading infrastructure, and liquidity provision to reduce conflicts of interest and operational risk.
- Prioritise institutional and wholesale use cases, with retail-facing applications following only after custody, disclosure, and grievance frameworks are firmly established.
- Align tokenised assets with regulated settlement rails and avoid unsupervised or offshore settlement mechanisms for domestic markets.
- Resolve legal and tax uncertainties early through coordinated action across financial regulators, tax authorities, and sectoral bodies.
- Use regulatory sandboxes and institution-led pilots, including those under the International Financial Services Centres Authority, to enable evidence-based experimentation and cross-regulatory learning.

Clear Limits and Design Constraints

Consultations consistently emphasised that tokenisation does not override economic fundamentals, legal responsibility, or institutional accountability.

- Tokenisation does not automatically create liquidity or affordability.
- Compliance and supervisory judgment cannot be fully automated.
- Governance, custody, and liability remain with identifiable entities, not code.
- Legal recognition and regulatory classification remain context-specific.
- Data transparency must be balanced against privacy and confidentiality.

The report concludes that India's comparative advantage in asset tokenisation lies in deliberate sequencing, institutional ownership, and policy clarity. Early applications are most credible in institutional and wholesale contexts, with retail-facing use cases following only after custody, disclosure, and grievance frameworks are firmly in place. If governed carefully, tokenisation can incrementally strengthen India's financial and asset-market infrastructure without compromising trust, stability, or regulatory control.

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TABLE OF ABBREVIATIONS

Abbreviation	Full Form
AIF	Alternative Investment Fund
AML	Anti-Money Laundering
API	Application Programming Interface
BIS	Bank for International Settlements
CBDC	Central Bank Digital Currency
CP	Commercial Paper
CPMI	Committee on Payments and Market Infrastructures
DLT	Distributed Ledger Technology
DvP	Delivery versus Payment
ECB	External Commercial Borrowing
FATF	Financial Action Task Force
FEMA	Foreign Exchange Management Act, 1999
FPI	Foreign Portfolio Investor
FSB	Financial Stability Board
GDP	Gross Domestic Product
GIFT IFSC	Gujarat International Finance Tec-City : International Financial Services Centre
GST	Goods and Services Tax
ID	Identifier

Abbreviation	Full Form
IFC	International Finance Corporation
IFSCA	International Financial Services Centres Authority
IMF	International Monetary Fund
INR	Indian Rupee
InvIT	Infrastructure Investment Trust
IOSCO	International Organization of Securities Commissions
IT	Information Technology
KYC	Know Your Customer
LTV	Loan-to-Value
MAS	Monetary Authority of Singapore
MCX	Multi Commodity Exchange of India
MSME	Micro, Small and Medium Enterprises
NAV	Net Asset Value
NBFC	Non-Banking Financial Company
NCD	Non-Convertible Debenture
NCDEX	National Commodity & Derivatives Exchange
NFT	Non-Fungible Token
NOC	No Objection Certificate
OECD	Organisation for Economic Co-operation and Development
OTC	Over-the-Counter

Abbreviation	Full Form
PAN	Permanent Account Number
PE/VC	Private Equity / Venture Capital
PoC	Proof of Concept
RBI	Reserve Bank of India
REIT	Real Estate Investment Trust
RERA	Real Estate (Regulation and Development) Act, 2016
RBI-DLT	RBI Distributed Ledger Technology (contextual usage)
SEBI	Securities and Exchange Board of India
SM-REIT	Small and Medium Real Estate Investment Trust

Abbreviation	Full Form
SPV	Special Purpose Vehicle
STR	Suspicious Transaction Report
TDS	Tax Deducted at Source
TRS	Total Return Swap
UAE	United Arab Emirates
USD	United States Dollar
UPI	Unified Payments Interface
VDP	Versus Delivery Payment (alternate usage)
WEF	World Economic Forum
YTM	Yield to Maturity

1. ASSET TOKENISATION: CONCEPTS, ARCHITECTURES, AND SCOPE

1.1 Background

Asset tokenisation has emerged within a broader global shift toward digitally enabled systems for managing data, transactions, and trust across economic activity. Advances in distributed ledger technologies and programmable digital infrastructure have expanded the ways in which assets and asset-related claims can be represented, recorded, and interacted with in digital form. As governments, regulators, and market participants globally explore these technologies across domains ranging from payments and registries to supply chains and capital markets, tokenisation has gained attention as one such application.

In the Indian context, this moment is especially salient. India's financial system combines deep institutional markets with rapid digitisation of payments, securities holding, and investor onboarding. Digital public infrastructure has lowered entry barriers and improved compliance capabilities, while market participation has broadened across asset classes. Against this backdrop, tokenisation is increasingly being explored not as a speculative innovation, but as a potential extension of existing market architecture, one that could enable new forms of asset representation while remaining anchored in regulatory oversight.

Crucially, asset tokenisation should be understood neither as a uniform solution nor as an inevitable outcome. Its relevance, feasibility, and impact depend on asset type, legal context, and the specific stage of the asset lifecycle being considered. This report therefore approaches tokenisation as a set of design choices and system architectures whose implications must be examined carefully, rather than as a singular technology trend.

1.2 What Is Asset Tokenisation?

Asset tokenisation does not yet have a single, universally accepted definition. Instead, it is understood through a set of closely related formulations offered by international financial institutions, regulators, and policy bodies, each emphasising different aspects of the process. A review of these definitions reveals a shared core idea: digital representation of asset-related claims on programmable infrastructure, alongside differences in emphasis on technology, market structure, and legal implications. The definitions below outline how tokenisation is understood by leading regulatory and institutional bodies.

“

Tokenization implies recording and transferring assets on a widely shared and trusted digital ledger that can be programmed.

Tokenization refers to the creation of assets or representations of assets on a digital token ledger.¹

- **International Monetary Fund (IMF)**

Tokenisation can be defined as the process of generating a digital representation of traditional assets on a programmable platform.¹

- **Bank for International Settlements (BIS)**

“

Tokenisation is the process of converting or issuing assets as programmable tokens that carry their ownership record and rules, using DLT.

- **Bank for International Settlements (BIS) and Committee on Payments and Market Infrastructures (CPMI)**

"Tokenization of financial assets refers to the process of representing ownership of a traditional financial asset, such as a share of stock or a bond, as a digital token on a distributed ledger or blockchain."¹

“

Tokenization of financial assets refers to the process of representing ownership of a traditional financial asset, such as a share of stock or a bond, as a digital token on a distributed ledger or blockchain.

- **International Organization of Securities Commissions**

Tokenization involves the conversion of various assets, such as securities, payments, commodities, and real estate, into digital tokens."

- **International Financial Services Centres Authority**

Overall, Asset tokenisation refers to the process of using a programmable ledger to digitally represent ownership of an asset, whether financial (e.g., bonds, funds, equities) or physical (e.g., real estate, art, commodities), in a format that is transferable and tradable. 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

Consultations also indicated that ambiguity around terminology such as “tokens” and “digital assets” remains a practical constraint for institutional participation, underscoring the need for definitional clarity without prematurely creating new asset categories.

Core Features Commonly Associated with Tokenisation

Beyond definitional convergence, global policy and industry literature also identifies a set of functional capabilities that tokenisation frameworks typically seek to enable. The World Economic Forum, in its work on asset tokenisation in financial markets, emphasises that tokenisation is best understood through these functional features rather than through technology labels alone.¹ Some of the features are following:

- **Fractionalisation** allows assets that are traditionally large, indivisible, or illiquid, such as real estate, infrastructure assets, or private credit, to be represented in smaller units. This can lower minimum investment thresholds and enable diversified participation, while also introducing new design considerations around governance, valuation, and investor protection.
- **Programmability** enables operational logic to be embedded directly into the token through code-based rules. This may include compliance checks, transfer restrictions, servicing conditions such as coupon payments or redemptions, and automated corporate actions. Programmability shifts parts of asset lifecycle management from manual or intermediated processes to rule-based execution.
- **Composability** refers to the ability of tokenised assets to interact with other digital components or smart contracts in a modular manner. For example, a tokenised bond may be linked to a collateral management or margining mechanism, allowing multiple financial functions to be combined without rebuilding each component from scratch.
- **Atomicity** allows multi-step transactions, such as the exchange of an asset and payment, to occur as a single, indivisible operation. By ensuring that all legs of a transaction either settle together or not at all, atomic execution can reduce

¹ https://reports.weforum.org/docs/WEF_Asset_Tokenization_in_Financial_Markets_2025.pdf

counterparty and settlement risk, particularly in cross-institution or cross-asset contexts.

Taken together, these features help explain why tokenisation has attracted policy and market attention as they point to a more standardised and programmable way of representing asset-related claims, with implications for how value is exchanged and how asset lifecycles, compliance, and risk management may be operationalised. By allowing ownership, transfer conditions, and lifecycle events to be expressed within a common digital framework, tokenisation can reduce reliance on manual reconciliation, improve auditability, and support controlled, rule-based transfers, with relevance varying by asset type and market context.

1.3 Underlying Technology Stack

Asset tokenisation is typically implemented using programmable ledger infrastructure that combines a shared record of asset positions with executable logic governing asset lifecycle events. While the functional features of tokenisation are technology-agnostic, their practical implementation relies on a set of architectural and technical design choices that shape how tokens are created, transferred, and managed within regulated environments.

- **Distributed Ledgers:** Distributed ledger technology (DLT) enables a shared and synchronised record of asset positions across multiple participants, maintained through append-only updates and consensus-based validation². In tokenisation use cases, the ledger functions as a record-keeping layer for token balances, transfer history, and, in some implementations, lifecycle events such as issuance, redemption, or corporate actions.⁽³⁾⁽⁴⁾
- **Token Standards and Representation Logic:** On programmable ledgers, tokens are typically implemented using standardised interfaces that define how balances are tracked, how transfers occur, and how additional rules may be enforced. In practice, widely adopted token standards, such as ERC-20 for fungible tokens, ERC-721 and ERC-1155 for non-fungible or semi-fungible assets, and more specialised standards such as

² <https://www.softobotics.org/blogs/revolutionizing-record-keeping-with-distributed-ledger-technology/#:~:text=The%20introduction%20of%20distributed%20ledger,and%20trustworthy%20record%2Dkeeping%20future.>

³ https://link.springer.com/chapter/10.1007/978-981-96-4078-2_5

⁴ Agur, Itai. 2025. "Tokenization and Financial Market Inefficiencies." *Fintech Notes* 2025 (001): 1. <https://doi.org/10.5089/9798400298905.063>

ERC-4626 for tokenised vaults or ERC-3643 for permissioned security tokens, provide common technical conventions for representing asset claims.^{(5) (6)}

- **On-Chain and Off-Chain Components:** On-chain refers to an asset or activity being operated on a programmable ledger. . Typically, on-chain components include the token itself, balance updates, transfer logic, and certain automated lifecycle events. Off-chain refers to financial processes or asset life-cycle functions taking place on non-tokenized, or conventional, systems. It may include functions such as investor onboarding, KYC and AML compliance, valuation, legal documentation, and dispute resolution.⁷
- **Permissioned, Public, and Hybrid Deployments:** Tokenisation platforms may operate on public or private ledgers and may be permissionless or permissioned depending on who can access data, submit transactions, or validate state changes. Public networks allow broad participation and transparency, while permissioned networks restrict validation and data visibility to approved participants.⁸
- **Smart Contracts as Execution and Control Logic:** Smart contracts are utilised within tokenisation frameworks as mechanisms for automating predefined operational processes, including transfers, servicing events, and settlement-related actions, based on established rules. They support greater consistency and predictability in execution but do not function as substitutes for legal agreements. Legal enforceability, accountability, and dispute resolution remain anchored in existing contractual, institutional, and supervisory arrangements within which such automation is deployed.⁹

In light of India's financial markets are digitally mature but coordination-heavy, tokenisation offers selective efficiency gains, not as a parallel system but as programmable infrastructure layered onto existing rails. The policy question would need to delve into not only whether to adopt tokenisation, but how deliberately, under what safeguards, and in what sequence.

1.4 Models of Tokenisation (Structural Taxonomy)

⁵ Gupta, Aishwary, Lakshmi Eswari, Vish BR, Sukriti Govil, Maurya Teja, Shristi Singh, Rajasekhar Gopalajosyula, et al. n.d. "Technical Guidance Note on Asset Tokenization." Report. *Technical Guidance Note on Asset Tokenization*. <https://it.telangana.gov.in/wp-content/uploads/2023/12/Technical-Guidance-Note-on-Asset-Tokenization.pdf>

⁶ These standards do not determine the legal nature of the asset, but they influence interoperability, composability, and the ease with which tokens can integrate with wallets, settlement systems, or compliance modules.

⁷ <https://www.asifma.org/wp-content/uploads/2025/09/full-report-dlt-report-final3.pdf>

⁸ *ibid*

⁹ [A survey on blockchain-enabled smart grids: Advances, applications and challenges.](#)

A key consideration in tokenization is the question of how ownership is represented and transferred. Traditional investment funds rely on off-chain fund share registers maintained by administrators, which serve as the authoritative record of ownership. Tokenization introduces the possibility of maintaining these registers on a blockchain, either as a mirror, a parallel record, or as the sole authoritative source.

In the Project Guardian Funds Framework¹⁰, three general archetypes of tokenized fund share register forms were discussed, which encompasses the following models:

Model 1: Digital Mirror

In this model, the authoritative record of ownership remains off-chain, while a corresponding on-chain record is maintained purely as a mirror for operational or informational purposes. The blockchain record does not confer legal ownership or settlement finality. This approach is commonly used when issuers or intermediaries are exploring tokenisation without altering existing issuance, settlement, or custody arrangements.

Model 2: Digital Twin (Partial On-Chain Authority)

The Digital Twin model introduces a partial on-chain record that represents beneficial interests or intermediary-held positions, while the primary legal record remains off-chain. This structure is often used to provide tokenised access to existing financial instruments, such as securities, fund units, or credit exposures, without changing the underlying instrument itself.

In practice, this may be implemented through intermediaries acting as nominees or through feeder or wrapper structures, with tokens representing the holder's economic interest rather than direct legal title.

Model 3: Digital Native (Full On-Chain Authority)

In the Digital Native model, issuance, ownership, transfer, and settlement are natively recorded on-chain. The blockchain ledger serves as the authoritative source of ownership, and transactions are executed through programmable logic. This structure is most applicable where legal frameworks recognise on-chain records as valid for ownership and settlement, and where market participants are prepared to operate within a fully tokenised environment.

Across all instruments, the choice of model depends on regulatory recognition, legal enforceability, market infrastructure readiness, and investor comfort with digital records.

¹⁰ Monetary Authority of Singapore. *Project Guardian: Operationalising Tokenised Funds*. Singapore: MAS, 2025. <https://www.mas.gov.sg/-/media/mas-media-library/development/fintech/guardian/project-guardian-operationalising-tokenised-funds.pdf>

While the underlying financial claims may remain unchanged, the degree to which tokenisation is embedded in the ownership and settlement process varies significantly across these model.

In the Indian context, near- to medium-term adoption is likely to remain concentrated in Digital Mirror and Digital Twin models, given existing legal recognition frameworks and supervisory structures. Fully Digital Native architectures, where on-chain records serve as authoritative ownership registers, are more likely to emerge selectively in tightly scoped environments such as wholesale settlement systems or IFSC-based pilots rather than as a default domestic market architecture.

1.5 Asset Lifecycle View

Asset tokenisation is most usefully analysed through the lens of the asset lifecycle. Across asset classes, this lifecycle generally spans issuance, holding and custody, trading and transfer, settlement, servicing and valuation, reporting and compliance, and exit or redemption (illustrated in Figure X). Importantly, tokenisation does not apply uniformly across these stages. In practice, it is often introduced selectively at points where operational complexity, fragmentation, or coordination costs are highest, while other stages continue to rely on existing systems. As a result, tokenised implementations frequently take hybrid forms rather than end-to-end on-chain models. Later chapters of this report examine each stage of the lifecycle in detail across different asset classes to assess where tokenisation can be most effectively applied and where it has the potential to deliver meaningful efficiency, transparency, or risk-management gains.

1.6 Scope and Boundaries

This report examines asset tokenisation from a policy and market-structure perspective, with a focus on understanding where tokenisation may be relevant and what challenges it may raise in the Indian context. For analytical clarity and ease of navigation, the report is organised into two substantive chapters that bucket assets into physical assets and financial assets, recognising that the nature of ownership, market infrastructure, regulatory treatment, and lifecycle complexity differs significantly across these categories.

The analysis draws on primary research, including consultations with regulators, market infrastructure institutions, and industry participants, as well as secondary research through a review of domestic and international policy reports and literature. While the report is India-focused, it is globally informed, drawing on international experiences and frameworks where relevant to contextualise emerging practices and policy questions.

The scope of this report is deliberately bounded. It does not cover unbacked crypto-assets, decentralised finance (DeFi) speculation, or retail crypto trading platforms. It does not propose deregulation or advocate bypassing existing financial institutions or market infrastructure. Instead, it explores tokenisation within the contours of prevailing legal, institutional, and supervisory frameworks, while recognising areas where these frameworks may require clarification or adaptation.

While this report adopts an institution-led market infrastructure lens, broader design dimensions in the web3 ecosystem, including public versus permissioned chain trade-offs, verifiable credential-based identity, cross-chain interoperability, oracle mechanisms, and network incentive design, remain relevant to the evolving architecture of programmable finance.

These elements form part of the broader design space of tokenised systems. However, their policy relevance in India depends on regulatory integration, enforceability, and institutional anchoring. The present analysis therefore prioritises integration with regulated market infrastructure rather than exploring decentralised or open network configurations in isolation.

Each substantive chapter concludes with a set of observations and considerations informed by the research and consultations undertaken, aimed at identifying open questions and possible directions for further policy and regulatory engagement. The discussion on financial asset tokenisation builds on and references a separate working paper developed as a companion analysis, which is integrated where relevant but remains distinct in its detailed treatment.

2. FINANCIAL ASSET TOKENISATION

2.1 Setting the Context

India today represents one of the largest and fastest-growing financial market ecosystems among emerging economies. With a nominal GDP of over USD 4 trillion, India hosts deep and increasingly interconnected public and private capital markets spanning equities, fixed income, pooled investment vehicles, private capital, and structured finance. Over the past decade, sustained economic growth, regulatory reform, and digital infrastructure have together expanded both the scale and sophistication of India's financial system.¹¹

India's listed equity market reached a total capitalisation of approximately USD 5.1 trillion in 2024, making it the fifth largest equity market globally.¹² Market estimates project that India's total market capitalisation could cross USD 10 trillion by 2030, reflecting sustained growth in listed companies, investor participation, and capital formation over the coming decade¹³. India's growing integration into global capital flows is reflected in its rising weight in major indices, with its share in the MSCI Emerging Markets Index increasing from 8.1 percent in 2020 to over 16 percent by 2025¹⁴. Fixed income and money markets, anchored by government securities and corporate debt, continue to play a central role in sovereign financing, institutional investment, and liquidity management.

Alongside public markets, pooled investment vehicles such as mutual funds, alternative investment funds, REITs, and InvITs have expanded steadily, aggregating capital across asset classes and investor categories. Private capital markets have also scaled significantly, with India accounting for roughly 20 percent of private equity and venture capital investment in the Asia-Pacific region, making it the second-largest PE/VC market in the region.¹⁵ These segments increasingly intersect with public markets through listings, structured exits, and co-investment strategies.

Across asset classes, India's financial system is characterised by a high degree of institutional maturity. Core market functions including issuance, trading, settlement, custody, and record-keeping operate on digital rails and within well-defined regulatory frameworks.

¹¹ World Bank, *India Overview*, accessed 2025, <https://www.worldbank.org/en/country/india/overview>

¹² *Business world, 2025*.

¹³ <https://www.livemint.com/market/stock-market-news/india-to-become-3rd-largest-economy-by-2027-market-cap-to-hit-10-trn-by-2030-jefferies-11708574245427.html>

¹⁴ MSCI, *MSCI Emerging Markets Index Factsheet*, accessed 2025, <https://www.msci.com/documents/1296102/38312924/Country+Spotlights+-+India.pdf>

¹⁵ <https://hdfc-tru.com/resources/primer/primer-listing/indias-pe-vc-landscape-2024-market-overview/>

Dematerialisation is near-universal in public markets, settlement cycles are among the fastest globally, and digital onboarding has broadened market access at scale. International assessments note that such institutional depth provides a strong foundation for incremental innovation within regulated financial markets¹⁶

It is within this context of scale, maturity, and institutional depth that tokenisation has emerged as a subject of growing interest globally and in India. Rather than being viewed as a replacement for existing market structures, tokenisation is increasingly discussed as a potential enabling layer within established financial systems, particularly for assets that already operate within digital, regulated, and intermediary-based environments.

2.2 From Digitisation to Programmability: What Tokenisation Changes

India's financial markets are already deeply digitised. Securities are held in dematerialised form, payments and settlements are processed electronically, and market records are maintained through regulated digital registries. These systems have significantly improved access, reduced paperwork, and enabled scale across public and private markets. However, digitisation has primarily focused on the electronic recording of assets and transactions, rather than on how the rules governing ownership, transfer, and settlement are executed across an asset's lifecycle.

Tokenisation represents a shift from static digital records to programmable asset representations. Instead of relying solely on intermediaries and post-transaction processes to enforce eligibility, transfer restrictions, and settlement conditions, tokenised models allow certain rules to be expressed and executed at the asset level within existing regulatory structures.

The distinction is visible when comparing dematerialised securities with tokenised assets. While demat systems accurately record ownership; transfers, pledging, and settlement depend on batch-based coordination across exchanges, clearing corporations, custodians, and payment systems. In contrast, tokenised representations can embed executable logic that enables more integrated functions, such as conditional transfers or delivery-versus-payment, to occur within a unified workflow¹⁷.

A similar shift applies to settlement. Traditional systems operate on predefined cycles, with reconciliation and finality achieved through sequential steps. Tokenised settlement models

¹⁶ibid

¹⁷ Financial Stability Board. (2024). *The financial stability implications of tokenisation*. <https://www.fsb.org/uploads/P221024-2.pdf>

being explored globally rely on event-driven execution, where the satisfaction of conditions, such as availability of funds or counterparty eligibility, can trigger settlement automatically under regulatory oversight¹⁸. These models prioritise coordination efficiency rather than disintermediation.

Importantly, tokenisation is not a single model. Some approaches involve native digital instruments, while others use tokenised mirrors layered over existing legal instruments. Global assessments suggest that regulated market experimentation to date has largely favoured overlay-based approaches for assets such as funds, bonds, and settlement instruments, reflecting considerations of legal certainty and supervisory comfort (IOSCO, 2023; FSB, 2024).

In this context, India's advanced digital financial infrastructure provides a strong foundation for tokenisation experiments. However, the impact of programmability is likely to vary across asset types and lifecycle stages. For this reason, the sections that follow examine tokenisation through a lifecycle lens, identifying where it can meaningfully enhance coordination and efficiency, and where existing market structures remain essential.

2.3 Where the Frictions Are in Traditional Financial Markets

India's financial markets operate within a well-defined institutional ecosystem that has enabled scale, stability, and market integrity. While the annexure details these roles and legal mandates, this section shifts focus to the frictions experienced in practice across participants and asset types. These frictions typically arise at points where assets move between systems, processes remain sequential rather than integrated, and information must be reconciled across multiple intermediaries. Assessments of financial market infrastructure, alongside stakeholder consultations conducted for this study, reflect common supervisory and market experience in private and off-platform financial markets.

Access and Onboarding

Access-related frictions are visible during onboarding and eligibility verification. In public markets, instruments such as listed equities and mutual funds benefit from standardised disclosure frameworks, relatively uniform KYC processes, and digitally integrated distribution channels¹⁹. By contrast, access to alternative investment funds, private credit, and structured

¹⁸ FSB (2024)

¹⁹ [https://www.taxmann.com/post/blog/sebi-guidelines-for-kyc-norms-in-securities-market#:~:text=SEBI%20Guidelines%20for%20KYC%20\(Know,Proof%20of%20Address%20\(PoA\).](https://www.taxmann.com/post/blog/sebi-guidelines-for-kyc-norms-in-securities-market#:~:text=SEBI%20Guidelines%20for%20KYC%20(Know,Proof%20of%20Address%20(PoA).)

products typically involves repeated submission of investor information, manual verification of eligibility criteria, and off-platform documentation exchanges²⁰.

From the perspective of issuers and fund managers, onboarding investors into private or pooled vehicles often requires parallel record-keeping across internal systems, fund administrators, custodians, and legal entities. Updates to investor details, eligibility status, or ownership records must be reflected separately across these systems, increasing operational overhead and the risk of inconsistency²¹. International policy analysis highlights that such duplication of records and reliance on manual reconciliation is a persistent feature of private and bespoke financial markets²².

Speed of Settlement

Settlement-related frictions in a digitised system often arise from how settlement processes are structured, involving a sequence of discrete steps, including trade confirmation, clearing, funds availability checks, securities movement, and final settlement. These steps are often executed in batches across distinct systems, with reconciliation occurring between each stage²³.

In India, while public equity markets have achieved compressed settlement cycles, similar efficiencies are not uniform across corporate bonds, private placements, or fund subscriptions and redemptions. Settlement timelines can vary by instrument and counterparty, and participants often lack continuous visibility into settlement status. Global studies of post-trade infrastructure note that such structures can result in liquidity being locked up during settlement windows and increase operational risk in the event of delays or mismatches^{24 25}.

Structural Illiquidity and Constrained Exit Pathways

Liquidity frictions differ sharply across asset classes. In public markets, investors are generally able to exit positions through secondary trading or predictable redemption mechanisms. In contrast, investors in alternative investment funds, private credit, and unlisted equity face structural illiquidity by design, with exits dependent on negotiated buyouts, asset sales, or external liquidity events such as listings, rather than continuous market trading.²⁶

²⁰ <https://bcasonline.org/wp-content/uploads/2025/07/White-Paper-on-Alternative-Investment-Fund.pdf>

²¹ <https://www.vistra.com/insights/how-digitalisation-can-optimize-investor-onboarding-and-kyc-processes>

²² FSB (2024)

²³ [*Tokenisation in the context of money and other assets: concepts and implications for central banks* \(October 21, 2024\).](#)

²⁴ FSB (2024)

²⁵ <https://www.bis.org/cpmi/publ/d225.pdf>

²⁶ Ibid

Even where secondary transfers are contractually permitted, they are often subject to issuer consent, counterparty eligibility checks, and manual updates to ownership records. Global policy assessments of private markets note that these transfer restrictions and operational frictions significantly limit secondary activity, even when there is investor demand for liquidity²⁷

Institution-Centric Oversight Models

In India, regulators such as the Reserve Bank of India and the Securities and Exchange Board of India primarily exercise supervisory oversight through institution-level regulation, periodic reporting, and post-transaction disclosures. Monitoring relies on scheduled submissions, audits, and intermediary-based compliance mechanisms rather than continuous, transaction-level visibility^{28 29}

Fragmented Data and Cross-Market Coordination Challenges

In private and off-platform markets, data remains dispersed across custodians, fund administrators, issuers, and intermediaries, with heterogeneous formats and delayed reporting. This fragmentation makes it resource-intensive for regulators to construct consolidated views of exposures and interconnected risks. As products increasingly span multiple regulatory perimeters, supervisory coordination relies on institutional information-sharing rather than shared infrastructure, slowing holistic risk assessment and reinforcing a cautious, sandbox-led approach to innovation.³⁰

Taken together, these frictions reflect the layered evolution of financial markets rather than weaknesses in regulation or institutional capacity. As markets scale and diversify, coordination across safeguards, controls, and intermediaries becomes more complex, even when records are digitised. This experience-based view of friction informs the lifecycle analysis that follows, which examines where coordination challenges are most pronounced and where targeted changes may reduce friction without undermining existing safeguards.

2.4 How Tokenisation Intervenes Across the Financial Asset Lifecycle

Financial assets are not static objects. Their economic and legal meaning evolves as they move through stages such as issuance, holding, trading, settlement, and exit. While India's financial markets are already digitised, each stage of this lifecycle is typically managed through separate

²⁷ BCG (2022) <https://www.bcg.com/publications/2022/relevance-of-on-chain-asset-tokenization>

²⁸ <https://www.rbi.org.in/commonman/English/Scripts/DeptofBS.aspx>

²⁹ <https://finlaw.in/blog/sebi-intermediaries-regulations-complete-guide-for-market-participants-in-india>

³⁰ [Prudential Regulatory and Supervisory Practices for Fintech: Payments, Credit and Deposits](#)

systems, intermediaries, and records. Tokenisation is increasingly being explored as a way to intervene across these stages by altering how coordination, execution, and record-keeping occur over time.



[Figure 1: Financial Asset Lifecycle](#)

The following sections outline how tokenisation is being applied at different points in the financial asset lifecycle, focusing on functional change rather than institutional rearrangement or unrestricted fractionalisation.

Issuance

- **Current Market Practice:** Issuance of financial assets generally involves the creation of legal documentation, investor onboarding, allocation of units or securities, and the establishment of ownership records. While issuance processes for public market instruments are relatively standardised, issuance in pooled vehicles and private markets often relies on bespoke documentation, manual investor verification, and multiple parallel records maintained by issuers, administrators, and custodians. Changes to issuance terms or investor composition typically require coordinated updates across these systems.
- **What Tokenisation Enables:** Tokenisation introduces the possibility of linking issuance records with executable conditions. Instead of issuance being a one-time administrative event, tokenised representations can encode allocation rules, eligibility constraints, and transfer restrictions at the point of creation. This does not alter the legal nature of the asset, but it can reduce downstream reconciliation by ensuring that

issuance conditions persist consistently as the asset moves through later lifecycle stages³¹

Franklin Templeton's Tokenised U.S. Government Money Market Fund

Franklin Templeton launched a tokenised version of a U.S. government money market blockchain fund in which fund shares are recorded on a public blockchain, with the serving as the official shareholder registry (Franklin Templeton, 2021). Subscriptions and redemptions continue to occur through regulated channels, but the on-chain record replaces traditional transfer-agent infrastructure. This model demonstrates how tokenisation can be used at the issuance stage to improve record-keeping and transparency while remaining fully within existing regulatory frameworks.

Holding and Record-Keeping

- **Current Market Practice:** Once issued, financial assets are held and recorded through a combination of custody arrangements, registrar systems, and contractual records.

SIX Digital Exchange (SDX), Switzerland

SIX Digital Exchange operates a regulated digital securities infrastructure where tokenised securities are issued, held, and settled natively on a distributed ledger, with the on-chain record recognised as the legal register of ownership. Custodians and brokers continue to interface with investors, but record-keeping and settlement occur on a unified system. This case study shows how tokenisation can intervene at the holding stage to reduce reconciliation across custodians, registrars, and settlement systems

³¹ FSB (2024)

Ownership updates, pledges, or changes in investor status are reflected through periodic reconciliations across these systems. In pooled and private structures, records may be updated infrequently, with ownership and entitlement information distributed across administrators, custodians, and legal entities.

- **What Tokenisation Enables:** Tokenised representations can function as a synchronisation layer across records. By maintaining a single, shared representation of ownership and associated conditions, tokenisation can reduce the need for repeated reconciliation. Holding remains intermediated, but changes to ownership or status can be reflected consistently and closer to real time, improving accuracy and traceability without eliminating existing custodial roles.³²

Trading and Liquidity

- **Current Market Practice:** Trading mechanisms differ widely across asset classes. Listed instruments benefit from continuous or scheduled trading, while many financial assets such as fund units, private credit, or structured products have limited or no secondary markets. Where transfers are permitted, they often require bilateral negotiation, eligibility checks, issuer consent, and manual updates to ownership records, making secondary activity slow and uncertain.

J.P. Morgan Onyx and Tokenised Settlement Pilots

JPMorgan's Onyx platform has piloted tokenised cash and securities settlement for repo and fund transactions, enabling delivery-versus-payment execution on a single ledger. While operating within existing institutional structures, these pilots demonstrate how tokenisation can compress settlement cycles and reduce reconciliation at the post-trade stage.

- **What Tokenisation Enables:** Tokenisation enables the design of controlled transfer mechanisms. Assets can be made transferable within predefined parameters, such as approved counterparties or time-bound windows, without becoming freely tradable.

³² International Organization of Securities Commissions. (2025). *Tokenization of financial assets*. <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD809.pdf>

This does not guarantee liquidity, but it can lower operational barriers to transfer by embedding transfer conditions directly into how the asset representation functions.³³

Settlement and Servicing

- **Current Market Practice:** Settlement and servicing processes are typically executed through sequential steps. Settlement often involves confirmation, clearing, fund movement, and final reconciliation across systems, frequently in batch cycles. Servicing activities such as interest payments, distributions, and valuation updates are handled through scheduled processes and manual interventions, particularly in pooled and private assets.

Project Guardian, Singapore

Project Guardian, led by the Monetary Authority of Singapore, tested tokenised fund units traded among approved institutional participants within a permissioned environment. Trading, custody, and settlement logic were embedded into smart contracts, while access remained restricted to eligible counterparties. This case shows how tokenisation can support controlled secondary liquidity without undermining investor protections or market structure

- **What tokenisation Enables:** Tokenisation allows certain settlement and servicing actions to become event-driven rather than schedule-driven. When predefined conditions are met, actions such as transfer of ownership or execution of payments can occur in a coordinated manner. While intermediaries continue to play key roles, the sequencing of steps can be compressed, and servicing logic can be executed more consistently across asset holders.³⁴

Exit and Redemption

- **Current Market Practice:** Exit mechanisms depend heavily on asset structure. Public market assets allow exit through secondary trading, while pooled and private assets

³³ IOSCO (2025)

³⁴ Ibid.

rely on redemption cycles, negotiated exits, or external liquidity events³⁵. These processes are often opaque, time-bound, and operationally intensive, with outcomes dependent on multiple counterparties and administrative actions.

Tokenised Private Credit and Fund Redemption Models

Several global asset managers have piloted tokenised private credit and fund structures where redemption logic is embedded into the token design, allowing exits to be executed automatically when contractual conditions are met. These models highlight how tokenisation can improve predictability at the exit stage without offering continuous liquidity.

- **What tokenisation Enables:** Tokenisation supports the design of rule-based exit mechanisms, such as predefined redemption windows or conditional transfer rights. These mechanisms do not remove liquidity constraints, but they can make exit processes more predictable and transparent by aligning investor expectations with encoded conditions. Exit remains governed by product design, but its execution can become more structured and less manual.

Taken together, these case studies show that tokenisation is not being adopted as a single end-to-end solution, but as stage-specific infrastructure applied where coordination costs are highest. Issuance, record-keeping, post-trade settlement, and controlled secondary transfers have emerged as the most viable entry points.

2.6 Where the Limits Are: What Tokenisation May Not Fully Address

While tokenisation introduces new capabilities across the financial asset lifecycle, consultations conducted for this study with regulators, market institutions, practitioners, technologists, academics, and legal experts, alongside global assessments, indicate that its impact is likely to be context-dependent and uneven across asset classes and market structures. Many constraints in financial markets are rooted in economic, legal, and institutional factors that technology alone may not resolve. Recognising these limits is

³⁵ [https://www.financierworldwide.com/exit-mechanism-trends-in-private-equity-transactions-in-india#:~:text=Initial%20public%20offers%20\(IPOs\)%20have%20traditionally%20been,forced%20to%20explore%20other%20modes%20of%20exit.](https://www.financierworldwide.com/exit-mechanism-trends-in-private-equity-transactions-in-india#:~:text=Initial%20public%20offers%20(IPOs)%20have%20traditionally%20been,forced%20to%20explore%20other%20modes%20of%20exit.)

important for maintaining realistic expectations and for informing calibrated policy approaches.

Stakeholders also cautioned against assuming that tokenisation can substitute for supervisory judgment, legal enforceability, or institutional accountability. In particular, unresolved questions around dispute resolution, insolvency treatment, and valuation were flagged as binding constraints on participation by banks and regulated financial institutions.

Liquidity and Affordability Are Not Automatically Created

Tokenisation can lower transfer and settlement frictions, but it does not, by itself, generate liquidity or broaden affordability. Actual liquidity depends on market formation factors such as issuance design, investor participation, valuation confidence, and credible exit pathways, and early tokenised markets often face cold-start dynamics. Similarly, fractionalisation may reduce minimum ticket sizes but does not alter underlying asset risk, complexity, or volatility, and may even obscure these characteristics for less sophisticated investors without appropriate disclosures and suitability safeguards. Besides such opacity in disclosures and unaltered underlying asset risk may also act as a deterrent for regulatory permissibility of tokenisation.

Stakeholders therefore emphasised the need for careful consideration of disclosure, suitability, and investor understanding, particularly where fractionalised financial assets are distributed beyond institutional or accredited investor bases.

Compliance Is Unlikely to Be Fully Automated

While tokenisation can support machine-readable rules and automated checks, consultations and global policy analyses indicate that compliance obligations are unlikely to be fully embedded into transactional infrastructure. Many compliance functions involve contextual assessment, supervisory judgment, and post-transaction review, which cannot be exhaustively codified without introducing rigidity or unintended gaps

As a result, tokenisation may complement existing compliance frameworks, but is unlikely to replace supervisory oversight, audits, or enforcement mechanisms that operate outside transaction execution.

Governance and Liability Continue to Reside Off-Chain

Another recurring theme in consultations was that governance and liability frameworks are not automatically transformed by tokenisation. Legal accountability for custody, investor protection, dispute resolution, and loss allocation continues to rest with identifiable entities

and enforceable legal arrangements. While tokenisation can change how records are maintained or how processes are executed, it does not, on its own, redefine responsibility when failures occur

Stakeholders also noted that tokenisation can concentrate certain operational risks, including software vulnerabilities, key management failures, and smart contract errors. These risks reinforce, rather than reduce, the importance of robust governance structures and clearly defined liability chains

Legal Recognition and Regulatory Classification Are Context-Specific

Across jurisdictions, the legal status of tokenised representations remains unsettled. In many cases, tokenisation functions as an overlay on existing legal records rather than as the authoritative source of ownership, reflecting unresolved questions around legal finality, enforceability, and insolvency treatment. At the same time, tokenisation can blur regulatory perimeters by changing issuance and settlement mechanics without altering economic substance, creating uncertainty around classification and regulatory treatment that often favours conservative, pilot-based deployment. Stakeholders observed that uncertainty around regulatory classification can affect product design, platform architecture, and market participation, often favouring conservative, pilot-based approaches over broad deployment.

Regulatory Classification of Tokenised Securities: USA

In January 2026, the U.S. Securities and Exchange Commission's Division of Corporation Finance clarified that the offer and sale of tokenised securities remain subject to the federal securities laws, and that the use of blockchain or distributed ledger technology does not alter the regulatory analysis. Where an issuer records securities directly on a distributed ledger and the token confers the same legal rights as a traditional security, it is treated as a security under existing law. By contrast, where a third party creates a tokenised representation of a security without conveying direct ownership rights in the underlying instrument, the structure may raise additional regulatory considerations and, depending on its design, may fall within the framework applicable to security-based swaps or other derivative instruments. The statement reinforces a substance-over-form principle: regulatory treatment flows from the legal rights and economic realities of the instrument, not from the technological medium through which it is recorded or transferred.

Data Governance and Supervisory Access

Tokenisation may enhance transparency and auditability, but it also raises policy questions around data access, privacy, and control. Determining who can view transaction data, under what conditions, and with what safeguards remains a sensitive issue, particularly where financial data intersects with personal or commercially sensitive information. Balancing supervisory visibility with privacy and confidentiality protections was identified as an area requiring policy guidance rather than purely technical solutions.

Operational lags are not fully accounted for

The transparency and automation of distributed ledger systems also expose them to operational failures and maintenance risks. In regulated financial markets, the design of failure scenarios is often more critical than steady-state efficiency gains. Regulatory confidence depends on how systems behave under stress, not only when functioning normally.

Accordingly, tokenised platforms must clearly define:

- **Failed atomic DvP:** unwind mechanics, loss allocation, and treatment of partially executed transactions.
- **Emergency pauses and intervention:** who may invoke them, notice requirements, and status of in-flight transactions.
- **Ledger re-organisations or forks:** identification of the authoritative record for purposes of title and payment obligations.
- **Default and insolvency events:** alignment with statutory settlement finality, netting protections, and set-off rights.

Settlement finality in financial markets is a legal construct, not merely a technical state. Token-native execution must therefore align with existing legal doctrines and preserve supervisory override powers. Code-based automation cannot substitute for institutional and regulatory authority; it must operate within it.

Acknowledging what tokenisation may not fully address is therefore not a constraint on innovation, but a prerequisite for responsible sequencing. This perspective provides a necessary counterbalance to the lifecycle analysis above and informs the India-specific considerations that follow.

2.7 Designing for India: Recommendations

The preceding analysis suggests that the relevance of tokenisation for India does not hinge on technological novelty, but on how carefully it is aligned with the country's existing financial

architecture. Consultations and global experience suggest that tokenisation is the most effective when deployed as an incremental upgrade to market infrastructure, not as a parallel financial system. The following recommendations outline a calibrated pathway that prioritises efficiency gains, supervisory confidence, and market integrity.

Strategic Priority	Policy Direction
Institutional Responsibility	Mandate clear allocation of responsibility across issuance, custody, trading, and liquidity functions, with regulated entities anchoring each stage of the asset lifecycle
Infrastructure Framing	Formally clarify that tokenisation is a digital representation layer applied to existing financial assets, with regulatory jurisdiction continuing to flow from the underlying instrument
Regulatory Approach	Issue principles-based guidance anchored in institutional accountability, settlement finality, enforceable liability, and supervisory oversight, without immediate statutory overhaul
Inter-Regulatory Coordination	Establish structured coordination across RBI, SEBI, insurance and commodities regulators, potentially drawing from the IFSCA institutional model for supervised experimentation
Sequencing Strategy	Prioritise institutional and wholesale use cases, including tokenised bonds, mutual fund units, bank deposits, and receivables, before retail-facing deployment
Settlement Alignment	Align tokenised asset pilots with RBI wholesale CBDC initiatives and regulated INR-denominated programmable settlement instruments; avoid offshore or unsupervised settlement assets
Post-Trade Efficiency	Deploy tokenisation selectively to reduce reconciliation across custodians and administrators, enable event-driven corporate actions, and improve auditability of ownership changes
Custody and Liability	Mandate licensed custodians, legally recognised linkage between token records and ownership, and clearly defined liability across issuers, platforms, and intermediaries

Cybersecurity and Resilience	Define minimum cybersecurity standards, require periodic audits and incident reporting, and integrate tokenisation oversight into systemic risk frameworks
Legal and Tax Certainty	Clarify GST and stamp duty treatment under a “same activity, same risk, same tax” principle; address FEMA implications, insolvency recognition, AML compliance, and distinction from virtual digital assets
Insolvency Alignment	Ensure token-native cash flows and liquidation mechanisms remain subject to moratoria and ipso facto restrictions; require segregation and reconciliation of client assets across on-chain and off-chain records

Table 1: Key Recommendations

1. Clarify Institutional Responsibility and Enforce Functional Separation Across Tokenised Markets

A central challenge in tokenised markets is the lack of clarity on which institution is ultimately responsible for asset integrity, compliance, and investor protection. Stakeholder consultations underscored that trust in tokenisation cannot be derived from technology alone and must be anchored in clearly identifiable, regulated institutions.

Policy design should therefore require clear institutional accountability at different stages of the tokenised asset lifecycle, combined with functional separation across key market roles. This includes distinct entities for:

- issuance of tokenised assets or claims;
- validation and trust functions, such as custody, asset backing, and compliance assurance;
- trading and exchange operations; and
- liquidity provision or market making.

Established market institutions, including regulated exchanges, depositories, custodians, and approved trusts, alongside regulated private participants, can anchor these roles. Clear responsibility and separation of functions can embed trust, reduce conflicts of interest, and allow innovation to develop at the application layer without concentrating systemic risk.

2. Position Tokenisation as an Infrastructure Layer, Not a New Market

Tokenisation should be formally framed as a digital representation and process enhancement layer applied to existing financial assets, rather than as a new asset class or market structure. This distinction is essential to preserve legal continuity and regulatory clarity.

Policy guidance should explicitly reaffirm that:

- the legal nature of the underlying asset remains unchanged,
- regulatory jurisdiction continues to flow from the underlying instrument,
- existing investor protection, disclosure, and prudential norms remain fully applicable.

This framing aligns with stakeholder consensus that tokenisation should enhance coordination efficiency without bypassing existing legal, regulatory, or institutional safeguards.

3. Adopt a Principles-Based and Coordinated Regulatory Approach

Stakeholder feedback indicated that immediate amendments to core securities, depository, or banking statutes may not be necessary in the near term. Instead, a principles-based regulatory framework for financial asset tokenisation, anchored in institutional accountability, functional segregation, settlement finality, enforceable liability, and supervisory oversight, may provide sufficient clarity while enabling calibrated experimentation within existing legal structures.

Given that tokenised instruments may span multiple regulatory perimeters, including banking, securities, insurance, and commodities markets, strengthened inter-regulatory coordination mechanisms are essential. In this context, an institutional approach drawing from the structure of the International Financial Services Centres Authority (IFSCA), which integrates representation from multiple sectoral regulators, may merit consideration as a means of facilitating supervised innovation while insulating existing regulatory frameworks from unintended spillovers.

4. Sequence Adoption Through Institutional and Wholesale Use Cases

Early adoption should prioritise institutional and wholesale contexts, where governance structures, risk management practices, and accountability mechanisms are already mature. Consultations indicate that these environments offer the most credible testing ground for tokenisation without exposing retail investors to premature risks.

Priority use cases include:

- tokenised government and corporate bonds within regulated issuance and settlement frameworks,
- tokenised units of mutual funds and alternative investment funds for operational efficiency,
- tokenised bank deposits and wholesale settlement instruments under RBI oversight,
- tokenised receivables and structured credit for institutional participation.

Stakeholders broadly agreed that while financial asset tokenisation presents the most credible near-term use case due to India's existing market infrastructure. Retail-facing applications, if considered, should follow only after custody standards, disclosure norms, grievance redressal mechanisms and insolvency frameworks have been demonstrably strengthened.

5. Anchor Tokenised Assets to Regulated Settlement Rails

Tokenisation delivers meaningful efficiency gains only when asset and settlement layers are aligned. Asset tokenisation without corresponding innovation in settlement retains reconciliation overheads and counterparty exposure.

Policy should therefore encourage:

- alignment of tokenised asset pilots with the RBI's wholesale CBDC initiatives,
- exploration of regulated, INR-denominated programmable settlement instruments,
- strict avoidance of unsupervised or offshore settlement assets for domestic financial markets.
- leverage sandbox and pilot activity under the International Financial Services Centres Authority (IFSCA) as a controlled environment for testing settlement-linked tokenisation models before broader domestic adoption.

Settlement innovation must remain conservative, with liquidity management, finality, and supervisory visibility taking precedence over speed or novelty.

6. Use Tokenisation to Improve Post-Trade Coordination

Tokenisation should be deployed selectively to address coordination frictions in post-trade processing, servicing, and reporting, rather than as a substitute for exchanges, clearing corporations, depositories, or custodians.

In public and retail-facing markets, interoperability with existing market infrastructure is essential to avoid fragmented records and preserve regulatory oversight. In private or off-market tokenisation models, full interoperability may not be immediately feasible; however,

systems should remain compatible with institutional processes and regulatory reporting requirements.

Priority areas for application include:

- reducing reconciliation across custodians, fund administrators, and issuers,
- enabling event-driven corporate actions and entitlement processing,
- improving auditability of ownership changes and servicing events,
- streamlining regulatory and compliance reporting.

7. Establish Clear Custody, Liability, and Accountability Frameworks

A major barrier to scale is uncertainty around custody and responsibility in tokenised environments. Clear allocation of liability is essential to maintain trust and enforceability.

Policy clarity is needed to:

- mandate licensed custodians for tokenised financial assets,
- require explicit linkage between tokenised records and legally recognised ownership,
- define liability across issuers, platform operators, custodians, and intermediaries,
- ensure investor grievance and redress mechanisms extend seamlessly to tokenised formats.

Without this clarity, efficiency gains risk being outweighed by legal and operational uncertainty.

8. Treat Cybersecurity and Operational Resilience as Core Financial Stability Issues

Tokenisation concentrates value into digital infrastructure, increasing exposure to cyber and operational risks. These risks must be governed at the same level as traditional market infrastructure.

Regulatory action should:

- define minimum cybersecurity and operational resilience standards for tokenisation platforms,
- require regular security audits, incident reporting, and recovery protocols,
- build supervisory capacity for monitoring and forensic analysis,
- integrate tokenisation oversight into systemic risk frameworks.

Cybersecurity should be treated as a financial stability concern, not merely an IT compliance issue.

9. Resolve Legal and Tax Uncertainties Through Coordinated Policy Action

Unresolved legal and tax treatment issues were identified by stakeholders as the single largest barrier to institutional participation, outweighing technological or market-readiness concerns. Fragmented guidance increases compliance costs and slows adoption.

A coordinated inter-agency mechanism involving RBI, SEBI, the Ministry of Finance, and tax authorities could address:

- GST and stamp duty treatment of tokenised transactions guided by the principle of “same activity, same risk, same tax,” to avoid multiple taxation, reduce friction, and encourage broader market participation.
- Revisit GST and conversion-related tax frictions in asset classes such as gold, where prior initiatives including Electronic Gold Receipts failed to scale despite infrastructure readiness.
- FEMA implications for cross-border token flows,
- legal recognition of tokenised records in disputes and insolvency,
- treatment of netting and settlement finality.
- distinction of tokenised assets from virtual digital / crypto assets from a direct taxation point of view,
- AML compliance for tokenised assets issuers, platforms and other service providers,

Early clarity in these areas would unlock participation without compromising regulatory control.

10. Remain Technology-Agnostic and Governance-Focused

Finally, consultations caution against prescribing specific blockchain architectures. Public, permissioned, or hybrid systems should be assessed based on governance outcomes, not technical ideology.

Regulatory evaluation should prioritise:

- auditability and traceability,
- enforceability and intervention capability,
- jurisdictional clarity,
- operational resilience and accountability.

Tokenisation infrastructure should remain technology-agnostic but firmly anchored in fiduciary and supervisory requirements.

11. Contemplate insolvency law overlap

Any auto-executing cash-flows and liquidations are subject to applicable moratoria and any ipso facto restrictions and would need to account for how set-off and netting safe harbours apply to token-native arrangements.

Client assets should be held on a segregated basis and reconciled across on-chain and off-chain records, with an outline of audit steps that insolvency practitioners can follow to evidence segregation and client claims.

Conclusion: Deliberate Sequencing Over Speed

India's comparative advantage in financial asset tokenisation lies in its strong institutional foundations and regulatory credibility. A sequenced, institution-led approach allows tokenisation to enhance efficiency and transparency without undermining trust or stability.

The central policy challenge is therefore not whether India should adopt financial asset tokenisation, but how deliberately, under what safeguards, and in what order such adoption should occur.

2.8 Looking Ahead: What Tokenisation Could Enable

Within these constraints, tokenisation nonetheless holds the potential to enable meaningful improvements in how financial markets function. If applied selectively and carefully, it could support more efficient capital movement, particularly by reducing coordination delays across lifecycle stages. For MSMEs and smaller issuers, tokenisation may contribute to improved access to credit by enabling new forms of collateralisation, structured issuance, or participation in pooled vehicles, provided underlying risk assessment and governance remain robust.

Tokenisation may also allow greater flexibility in product design, enabling investment structures that better match investor preferences for duration, liquidity, or risk exposure without fundamentally altering market safeguards. From a supervisory perspective, more structured and synchronised records could, over time, support improved visibility into market activity, exposures, and interconnections, complementing existing reporting and oversight mechanisms.

Importantly, these possibilities are not automatic outcomes of tokenisation. They depend on design choices, institutional integration, and policy clarity. Framed in this way, tokenisation is best understood not as a disruptive force, but as a potentially enabling layer that, if carefully governed, could incrementally strengthen India's financial market infrastructure.

3. PHYSICAL ASSET TOKENISATION

3.1 Introduction: Landscape mapping

Physical assets refer to tangible, real-world holdings that have intrinsic value by virtue of their material existence and economic utility. These include land and buildings, physical commodities such as metals and energy products, infrastructure, and other tangible resources that form the backbone of industrial, commercial, and investment activity. Unlike purely financial instruments whose value derives from contractual or entitlement claims, physical assets carry real economic use and can be owned, leased, or traded directly.³⁶

Physical assets have historically served as the dominant repository of wealth and investment capital in most economies. They underpin productive activity, store value across economic cycles, and often exhibit different risk and return profiles relative to financial assets. As the global economy has expanded, the aggregate value of these tangible assets has grown substantially, shaping everything from household portfolios to national balance sheets. Following are some examples of such assets.

- **Real Estate:** Real estate is the largest physical asset class globally, with particular prominence in India. The sector is projected to reach USD 5.8 trillion by 2047, with its share of GDP rising from about 7 percent to over 15 percent, driven by urbanisation, rising incomes, and expanding supply³⁷. Organised real estate supply in major cities is expected to grow by around 42 percent between 2024 and 2030, reflecting sustained demand³⁸.
- **Commodities and Other Tangible Assets:** Commodities, including energy, metals, and agricultural goods, underpin global production and trade and have long served as stores of value. These assets are actively priced on organised exchanges such as MCX and NCDEX, connecting physical supply chains with financial markets. Infrastructure, machinery, and equipment similarly form the backbone of productive capital and long-term economic output.³⁹

³⁶ Nassr, I., OECD, Committee on Financial Markets (CMF), & OECD Secretariat. (2021). Understanding the tokenisation of assets in financial markets. *OECD Going Digital Toolkit Notes*, No. 19. https://www.oecd.org/content/dam/oecd/en/publications/reports/2021/11/understanding-the-tokenisation-of-assets-in-financial-markets_2e657111/c033401a-en.pdf

³⁷ *Indian Real state Industry Analysis Presentation* | IBEF. (n.d.). India Brand Equity Foundation. <https://www.ibef.org/industry/indian-real-estate-industry-analysis-presentation>

³⁸ Indian Real Estate 2030: Technology, Sustainability, & Growth. (2025, September 27). Cushman & Wakefield. <https://www.cushmanwakefield.com/en/india/insights/indian-real-estate-2030>

³⁹ <https://kunvarjiwealth.com/blog/top-commodity-exchanges-in-india-mcx-ncdex-icex-their-role>

- **Accounts Receivable and Tangible Claims:** Accounts receivable represent enforceable claims arising from tangible economic activity and are central to working capital management. While not traded like real estate or commodities, receivables can be financed or securitised, linking their value directly to underlying production and transactions.

Physical Assets

Tangible, real-world holdings with intrinsic value — the backbone of wealth, investment, and economic activity.



Figure 2: Physical Assets in India

3.2 Issues with Traditional Physical Assets, with Emphasis on Real Estate

As mentioned in the section above, physical assets have long been central to wealth creation and capital storage in India, where land and property carry economic, social, and intergenerational significance. Yet, the institutional structures governing their ownership, transfer, and investment continue to exhibit deep structural frictions. These are most visible in real estate but extend across other physical asset classes, manifesting as persistent illiquidity, high entry barriers, and regulatory complexity.

In a rapidly growing economy undergoing significant technological transformation, these constraints increasingly sit at odds with evolving expectations of market access, efficiency, and transparency. Importantly, the frictions discussed below rarely operate in isolation; they often reinforce one another, compounding barriers to participation, capital mobilisation, and market depth.

- a. **Structural Illiquidity and Capital Lock-In:** A defining limitation of physical assets is their structural illiquidity⁴⁰. Real estate, land, infrastructure assets, natural resources, and similar holdings are typically long-duration investments with limited secondary markets⁴¹.

In the Indian real estate context, illiquidity is further reinforced by high transaction costs⁴², long settlement timelines⁴³, and regulatory approvals⁴⁴ that delay asset transfer. Similar illiquidity challenges are observed across other physical asset classes such as infrastructure projects, commodities held outside exchange-traded frameworks, and privately owned productive assets, where capital remains locked for extended periods with limited exit mechanisms

⁴⁰ Illiquid assets are characterised by high stock-to-flow ratios, low trading frequency, imperfect price discovery, and limited exit options relative to liquid financial instruments such as listed equities.

⁴¹ Kumar, Sumit, Rajaram Suresh, Darius Liu, Bernhard Kronfellner, Aaditya Kaul, and Boston Consulting Group. 2022. "Relevance of On-chain Asset Tokenization in 'Crypto Winter.'" *Boston Consulting Group*. <https://www.bcg.com/publications/2022/relevance-of-on-chain-asset-tokenization>

⁴² Real estate transactions typically involve 6-8% stamp duty and registration charges, 1-2% brokerage per side, 5% GST on under-construction properties, 1% TDS above ₹50 lakh, and additional legal and documentation costs, making entry and exit expensive.

⁴³ Legal due diligence, financing approvals, and physical registration processes extend property settlements from several weeks to multiple months, compared to T+1 settlement cycles in financial markets.

⁴⁴ Asset transfer and project execution are often delayed by multiple approvals, including land title verification, environmental and municipal clearances, RERA compliance, and numerous NOCs, with approval timelines frequently stretching from months to years.

- b. **High Entry Barriers and Affordability Constraints:** Investment in physical assets is constrained by high minimum ticket sizes, which limit participation and diversification, particularly for retail investors. Rising land prices, construction costs, and input inflation have intensified affordability challenges in India, especially in urban markets. These high entry thresholds concentrate household wealth in single, leveraged assets and restrict broader access to real estate and other physical asset classes.⁴⁵
- c. **Presumptive Titles and Ownership Uncertainty:** A core structural challenge in Indian real estate is the presumptive nature of property titles, where ownership is inferred through document chains rather than guaranteed by the state. Registration records transactions but does not confer certainty of title, leaving scope for disputes and competing claims. This uncertainty elevates transaction risk, necessitates extensive historical due diligence, and raises costs, thereby undermining investor confidence and limiting institutional participation, particularly in land-intensive projects.
- d. **Fragmented State-Controlled Registries and Governance Complexity:** Land and property are state subjects in India, resulting in fragmented land registry systems with varying processes, digitisation standards, and record formats across states. In addition to data and interoperability challenges, state-specific land-use classifications, restrictions, and exemptions, such as limits on development, transfer, or permissible economic activity on certain categories of land further constrain asset utilisation. These policy variations complicate verification, transfer, and enforcement of property rights, limit fungibility across jurisdictions, and restrict the free flow of capital, reinforcing the manual, document-intensive, and fragmented nature of real estate markets.
- e. **Opacity, Informality, and Market Distortions:** Real estate markets are characterised by persistent information asymmetries relating to pricing, ownership history, encumbrances, and regulatory approvals. Informal practices, including cash components, under-reporting of transaction values, and off-book dealings, distort price signals, weaken tax compliance, and undermine trust in formal market mechanisms. Supply-side distortions such as land hoarding and delayed project execution further restrict effective supply, contributing to artificial scarcity, price volatility, and affordability pressures.⁴⁶
- f. **Document-Heavy Processes and Regulatory Overlaps:** Transactions involving physical assets rely on extensive physical documentation, manual verification, and coordination

⁴⁵ Greenscape Group. *India Real Estate Outlook 2025: Affordability, Supply Dynamics, and Market Access*. New Delhi: Greenscape Group, 2025. <https://www.greenscapedgroup.co.in/tag/indian-real-estate-in-2025-in-india/>

⁴⁶ Ibid n.51

across multiple intermediaries and authorities. Title deeds, approvals, tax records, and compliance filings must be reconciled across agencies, increasing transaction time, legal costs, and dispute risk. These operational inefficiencies are reinforced by overlapping regulatory frameworks, including state land laws, RERA, securities regulation, foreign exchange controls, and taxation regimes, creating legal uncertainty and slowing investment, particularly for fractionalised and cross-border participation.

3.3 Current Policy and Regulatory Landscape Governing Physical Assets in India

The regulation of physical assets in India is characterised by asset-specific legal regimes, layered compliance obligations, and a sharp distinction between ownership, investment, and transfer mechanisms. Real estate occupies the most developed and contested regulatory space among physical assets, but similar structural features may sometimes extend to other asset classes such as commodities, infrastructure assets, and trade receivables.

I. Real Estate

Real estate in India is governed by a fragmented set of laws spanning state land regimes, registration and stamp duty requirements, sector-specific regulation under RERA, capital markets law, foreign exchange controls, and multi-point taxation. As summarised in the table below, this layered legal architecture makes direct ownership and transfer of real estate capital-intensive, illiquid, and difficult to standardise for market participation. It is within this regulatory context that REITs and, more recently, SM-REITs have emerged as structured regulatory responses to channel real estate exposure through regulated investment vehicles.

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A. REITs⁴⁸

Design: a table with all the numbers and technical/regulatory details

i. Emergence and Rationale

Real Estate Investment Trusts (REITs) were introduced in India as a regulatory mechanism to allow public market participation in income-generating real estate while retaining investor protection and market oversight. Notified by SEBI in 2014, the framework allows capital pooling, ownership of stabilised commercial assets through SPVs, and distribution of rental

⁴⁷ KPMG, Chintan Patel, KPMG, and NAREDCO. 2019. "Disruptions in Real Estate in India." Report. *KPMG in India and National Real Estate Development Council (NAREDCO) Report*.

⁴⁸ Ibid n53

income to unit holders. Units of listed REITs are traded on stock exchanges, allowing liquidity and price discovery within a regulated environment. However, the first operational REIT in India was listed only in 2019, reflecting the time required for asset aggregation, sponsor readiness and regulatory alignment.

ii. Design Constraints of the REIT Framework

Despite steady growth, REITs are not designed to accommodate the full diversity of India's real estate market. Regulatory requirements such as minimum asset values of ₹500 crore, leverage caps of around 49 percent, mandatory distribution of a large share of cash flows, and ongoing compliance obligations make REITs viable primarily for large, stabilised, income-generating assets. Development-stage projects, smaller commercial buildings, fragmented ownership structures, and regionally dispersed assets typically fall outside their scope.

These constraints are structural rather than incidental. While REITs improve market access and liquidity at the unit level, they continue to inherit several underlying constraints of traditional real estate, including dependence on asset scale, stable cash flows, and concentrated ownership. As a result, a substantial segment of India's real estate universe remains outside REIT participation even where assets are economically viable.

B. Introduction of SM-REITs

To address some limitations of REITs, SEBI introduced Small and Medium REITs (SM-REITs) in 2024 as a regulated framework for fractional ownership of income-generating real estate. The regime brings existing fractional platforms under formal oversight through registration, governance, and disclosure requirements, offering a compliant pathway for assets that do not meet traditional REIT thresholds.⁴⁹

However, SM-REITs are intended to professionalise an existing segment rather than significantly broaden access. Entry thresholds and compliance costs remain relatively high, shaping the types of assets that can be included. Together, REITs and SM-REITs remain conservative structures, suited primarily to stabilised, yield-producing assets. As a result, a large share of Indian real estate continues to fall outside their scope, prompting exploration of complementary approaches such as tokenisation to address gaps beyond public market vehicles.

⁴⁹ Realty Bytes. 2024. "Realty Bytes." Report. https://www.grantthornton.in/globalassets/1.-member-firms/india/assets/pdfs/realty-bytes/realty_bytes_september_2024.pdf.

Regulatory Dimension	Applicable Laws / Authorities	Key Provisions
Land Ownership & Transfer	State land laws; Registration Act, 1908; Indian Stamp Act, 1899	Sale deeds and transfer instruments require stamping and registration; registration records transactions but does not guarantee title
Land Administration & Records	State land registries; state-specific digitisation frameworks ⁵⁰	Fragmented registries; varying digitisation standards and record formats across states
Buyer Protection & Project Regulation	Real Estate (Regulation and Development) Act, 2016 (RERA) ⁵¹	Mandatory project registration; disclosure obligations; escrow of project funds; grievance redressal
Investment Structuring & Pooling	SEBI Act, 1992; Securities Contracts (Regulation) Act, 1956; SEBI (Collective Investment Schemes) Regulations ^{52,53}	Real estate exposure structured via SPVs, trusts, or pooled vehicles; securities law applicability depends on investor rights and returns
Foreign Ownership & Investment	FEMA, 1999 and associated rules ⁵⁴	Category-specific restrictions on acquisition and transfer; agricultural land, plantation property, and farmhouses largely prohibited
Taxation (Lifecycle-Level)	Income-tax law ⁵⁵ ; GST law ⁵⁶ ; stamp duty statutes ⁵⁷ ; asset- and vehicle-specific tax rules	Multi-point taxation at acquisition, holding, and transfer; varying treatment by structure

Table 2: Regulatory Architecture Governing Real Estate and Physical Assets in India

II. Other Physical Assets: Parallel Regulatory Constraints

Beyond real estate, other physical assets are governed by similarly segmented regulatory frameworks. Commodities are regulated through a combination of market regulation by SEBI for exchange-traded derivatives and sectoral oversight for physical storage, warehousing, and

⁵⁰ The Registration Act, 1908, Act No. 16 of 1908 (India), <https://www.indiacode.nic.in/handle/123456789/2190>.

⁵¹ The Real Estate (Regulation and Development) Act, 2016, Act No. 16 of 2016 (India), <https://www.indiacode.nic.in/handle/123456789/2158>.

⁵² The Securities and Exchange Board of India Act, 1992, Act No. 15 of 1992 (India), www.sebi.gov.in.

⁵³ The Securities Contracts (Regulation) Act, 1956, Act No. 42 of 1956 (India), www.indiacode.nic.in.

⁵⁴ The Foreign Exchange Management Act, 1999, Act No. 42 of 1999 (India), www.indiacode.nic.in.

⁵⁵ The Income-tax Act, 1961, Act No. 43 of 1961 (India), incometaxindia.gov.in.

⁵⁶ The Central Goods and Services Tax Act, 2017, Act No. 12 of 2017 (India), www.indiacode.nic.in.

⁵⁷ The Indian Stamp Act, 1899, Act No. 2 of 1899 (India), <https://www.indiacode.nic.in/handle/123456789/12853>.

trading. Infrastructure assets are subject to concession agreements, sector-specific regulators, and public-private partnership frameworks, which restrict transferability and impose long lock-in periods. Accounts receivable and trade finance assets, while movable in nature, are regulated through contract law, banking regulation, and insolvency frameworks, limiting their direct marketability despite their economic value.

Across these asset classes, common regulatory features emerge: restricted transferability, reliance on intermediated structures, limited secondary markets, and layered compliance obligations. These features constrain liquidity and broaden the gap between economic value and investability.

3.3 Tokenisation of Physical Assets to Expand Market Access and Economic Capacity

I. Backdrop: Structural Gaps in Existing Market Infrastructure

India's capital markets have witnessed deep retail participation over the past decade, supported by digital distribution, low entry thresholds, and liquid secondary markets. In contrast, direct participation in real estate investment remains limited, not due to lack of interest, but because of structural barriers such as high ticket sizes, illiquidity, opaque processes, and complex verification requirements. This divergence has left property investment capital-intensive and episodic, concentrated among a narrow set of participants, even as real estate remains a major store of household and institutional wealth.

Against this backdrop, growing interest in tokenisation of physical assets, particularly real estate, reflects attempts to address these infrastructure limitations by rethinking access, ownership, and capital formation, rather than to replace existing regulated vehicles such as REITs.⁵⁸

II. What Tokenisation Means in the Context of Physical Assets

In the case of physical assets, tokenisation does not always involve digitising the asset itself, but rather digitising claims over ownership, income streams, or cash flows linked to that asset. In real estate, this has taken forms such as fractional economic interests in property-holding entities, debt or yield-linked tokens backed by rental cash flows, and redemption-based claims. Similar structures are emerging across other physical assets, including infrastructure projects, commodities, and receivables. However, consultations emphasised that such

⁵⁸ Ibid n47

representations translate into meaningful market access only when legal enforceability, tax treatment, and custody arrangements are explicitly resolved.

Tokenisation is being applied across different stages of the asset lifecycle. At the primary level, it is used to structure capital raising through SPVs or fund-like vehicles, replacing manual issuance and registry processes with programmable systems. At the secondary level, tokenisation can enable controlled transferability and limited liquidity, subject to regulatory and contractual constraints. Token design varies across ownership-linked, yield-linked, and access-based models, driven primarily by legal and regulatory considerations rather than technology alone⁵⁹.

Global assessments indicate growing institutional interest in tokenised real-world assets, particularly in real estate, private credit, and infrastructure. Estimates suggest the addressable market for illiquid asset tokenisation could reach USD 16 trillion by 2030, with adoption concentrated initially in private and institutional markets rather than open retail environments.

Potential Benefits of Physical Asset Tokenisation⁽⁶⁰⁾⁽⁶¹⁾⁽⁶²⁾⁽⁶³⁾

- a. **Inclusion and Access:** A core economic argument for tokenisation is its potential to lower entry barriers to physical asset ownership by enabling micro-ticket investments. By introducing digital-native ownership and verification layers, tokenisation can expand participation in assets such as real estate and infrastructure without compromising traceability or regulatory compliance, particularly when combined with digitised land records and identity frameworks.
- b. **Fraud Reduction and Verification Efficiency:** While tokenisation does not replace legal title systems, it can function as a verification and audit layer that improves transparency around ownership history, encumbrances, and transaction trails. Programmable ledgers can reduce information asymmetry and verification costs,

⁵⁹ “Digital Dividends: How Tokenized Real Estate Could Revolutionize Asset Management.” 2025. Deloitte Insights. December 24, 2025. <https://www.deloitte.com/us/en/insights/industry/financial-services/financial-services-industry-predictions/2025/tokenized-real-estate.html>.

⁶⁰ “What Is Tokenization and How Does It Work in Case of Real World Assets – Finternet.” n.d. <https://finternetlab.io/what-is-tokenization-and-how-does-it-work-in-case-of-real-world-assets/>.

⁶¹ “Scaling up Tokenisation and DLT.” 2025. EUROFI SEMINAR. <https://www.eurofi.net/wp-content/uploads/2025/07/3.5-scaling-up-tokenization-and-dlt.pdf>

⁶² Ibid n67

⁶³ Ibid 47

addressing risks such as land fraud and document manipulation that deter both retail and institutional participation.

- c. **Liquidity Design and Collateral Formation:** Tokenisation enables designed or graduated liquidity rather than unrestricted tradability, allowing transferability to be tailored to asset type, investor category, and regulatory constraints. This flexibility supports the use of tokenised receivables, rental cash flows, and infrastructure revenues as collateral within regulated lending frameworks, improving capital efficiency without destabilising markets.
- d. **Credit Enablement and Asset Productivity:** In the Indian context, tokenised real estate has particular relevance for credit creation. Digitised ownership and cash-flow tracking can unlock underutilised property assets as collateral, supporting credit access for asset-rich but liquidity-constrained households and small businesses. This positions tokenisation as financial infrastructure rather than merely an investment innovation.
- e. **Broader Economic Effects:** At a macro level, studies associate tokenisation with improved capital allocation, lower transaction costs, and deeper markets when implemented within sound regulatory frameworks. Its economic value lies less in speculative trading and more in restructuring how assets are financed, owned, and leveraged, particularly in under-digitised economies.

Importantly, tokenisation is consistently framed as complementary to existing regulated structures. In India, REITs and SM-REITs address public and regulated fractional ownership for stabilised assets, while tokenisation is being explored to address segments that remain outside these frameworks due to size, stage, or structural constraints. This sets up the policy questions around how tokenisation interacts with existing legal and regulatory systems.

Asset Class	Primary Economic Benefit	System-Level Impact
Land	Reduced disputes and fraud	Governance capacity
Real Estate	Broader capital access	Job creation, development
Gold / Bullion	Formalisation of wealth	Financial inclusion
Warehoused Commodities	Faster working capital	Supply-chain efficiency
Receivables	MSME credit access	Productivity growth

Table 3: Economic Value Proposition

III. Bullion and Commodities as Tokenisable Physical Assets

Tokenisation offers an additional representation layer for commodities that are standardised, verifiable, and economically fungible. Tokenised bullion models typically involve tokens backed by physically stored assets held with regulated custodians, enabling fractional ownership and programmable transfer without altering underlying commodity market structures. Similar approaches are being explored for agricultural produce, industrial metals, and energy-linked assets, particularly in private or permissioned environments that prioritise compliance, traceability, and settlement efficiency⁶⁴.

Participants noted that prior initiatives such as Electronic Gold Receipts failed to scale not due to infrastructure or demand constraints, but due to punitive and cascading tax treatment at issuance and conversion stages. This experience was cited as a cautionary precedent for tokenised bullion models, where unresolved tax treatment could similarly undermine otherwise viable designs.

The economic relevance of commodity tokenisation is strongest in collateral and credit formation. Digitally verifiable commodity ownership can improve collateral usability, support inventory-backed financing, and integrate physical assets more effectively into formal credit systems, particularly in emerging markets.

Taken together with real estate, bullion and commodities illustrate a broader pattern: large pools of physical wealth remain outside capital markets due to illiquidity and verification frictions. Tokenisation is being explored as a common infrastructure layer across asset classes, with asset-specific designs shaped by custody norms, regulation, and market maturity, rather than as a one-size-fits-all model.

3.4 Global Case Studies: Real Estate and Beyond

Dubai (UAE, Real Estate)

In 2024, the Dubai Land Department launched a pilot to anchor property title deed hashes on blockchain under its Real Estate Innovation Initiative. Rather than replacing the state registry, the model adds a cryptographic verification layer to reduce fraud and speed up transactions. Estimates suggest tokenised transactions could account for around 7 percent of Dubai's real

⁶⁴ Ibid n67

estate market by 2033 (approximately AED 60 billion or USD 16 billion), illustrating how hybrid registry models can scale without disrupting existing legal systems.⁶⁵

Singapore (Real Estate Platforms)

Singapore has emerged as a hub for regulated real estate tokenisation pilots. Fractionalised property investments have been structured through SPVs, with blockchain tokens representing economic interests that can be traded on secondary markets. Some pilots have generated secondary trading volumes of up to 60–70 percent of underlying asset value, demonstrating liquidity creation for otherwise illiquid assets. Regulatory support has been central, with the Monetary Authority of Singapore enabling controlled experimentation through supervised sandboxes such as Project Guardian.⁶⁶

Other Asset Classes (Gold and Carbon Credits)

Beyond real estate, tokenisation has gained traction in commodities and environmental assets. Tokenised gold models convert physically stored bullion into fractional, fully backed digital tokens⁶⁷, lowering entry costs and enabling continuous trading while retaining direct asset backing. Similarly, global pilots in carbon markets⁶⁸ have tokenised offset credits linked to official registries, improving price transparency, traceability, and confidence in fragmented markets. Across both cases, tokenisation enhances divisibility and transferability without altering the underlying asset markets.

India: GIFT City and State-Level Initiatives

India has begun active experimentation through regulatory sandboxes and state-led pilots. The International Financial Services Centres Authority in GIFT City has enabled tokenised asset funds under supervision, including a USD 7 million tokenised real estate fund with minimum investment sizes of around USD 1,000⁶⁹. At the state level, governments such as Telangana, Maharashtra, and Andhra Pradesh have piloted blockchain-based land record systems that anchor document hashes on-chain while retaining records within government registries. This hybrid approach focuses on fraud reduction, auditability, and administrative efficiency rather than market trading⁷⁰.

⁶⁵ Sandor, Krisztian. 2025. "Real-World Asset News: Dubai Starts Real Estate Tokenization Pilot, Forecasts \$16B Market by 2033." *Coin Desk*, March 19, 2025. <https://www.coindesk.com/business/2025/03/19/dubai-starts-real-estate-tokenization-pilot-forecasts-usd16b-market-by-2033>.

⁶⁶ <https://investax.io/blog/singapore-shaping-the-next-decade-of-finance-through-asset-tokenization>

⁶⁷ https://www.gold.org/sites/default/files/downloads/2025-10/WGC_x_TFL_Report-A-New-Golden-Age_Final_Oct3.pdf

⁶⁸ <https://www.ipmorgan.com/kinexys/documents/carbon-markets-reimagined-digital-assets.pdf>

⁶⁹ <https://varanium.vc/real-world-asset-tokenization-takes-off-in-indias-gift-city/#:~:text=However%2C%20the%20road%20ahead%20is,ownership%20is%20distributed%20and%20redefined.>

⁷⁰ <https://coinlaw.io/amaravati-polygon-blockchain-land-records/#:~:text=As%20Featured%20In,Immutable.>

Across jurisdictions, tokenisation is being deployed pragmatically: as a complement to existing legal and regulatory systems rather than a replacement. Whether in Dubai's land registry, Singapore's private real estate platforms, or India's sandboxed experiments, pilots demonstrate measurable gains in verification, liquidity design, and transparency. Together, these cases show tokenisation moving from concept to implementation, offering regulators concrete evidence on how physical assets can be integrated into digital market infrastructure at scale.

3.5 Tokenisation as a Reconfiguration of the Asset Lifecycle

Tokenisation reshapes how physical assets are owned, transferred, and financed by enabling digital representations of ownership and economic rights to circulate through programmable infrastructure. Rather than only digitising participation in legacy structures, tokenisation expands the design space for how assets and claims are issued, managed, and exchanged across their lifecycle.

It is important to distinguish between governance-oriented tokenisation and market-facing tokenisation. Governance-oriented tokenisation focuses on strengthening record integrity, auditability, and fraud reduction within registries and administrative systems. Market-facing tokenisation, by contrast, seeks to enable capital formation, fractional participation, and transferability.

In practice, tokenisation operates along a spectrum. Some models enable direct or redeemable ownership claims over standardised physical assets such as gold or warehouse-stored commodities, where custody and verification allow tokens to closely approximate title-like rights. Other models represent fractional economic interests, income streams, or collateral claims linked to assets held through SPVs or trusts. Across both approaches, tokens become the primary interface through which value, rights, and compliance are managed. Stakeholders cautioned that movement along this spectrum is constrained less by technology and more by legal recognition, taxation, and institutional accountability.

A defining shift introduced by tokenisation is continuous ownership accounting. Unlike traditional systems, where ownership changes occur only at discrete transaction points, tokenised interests can be issued, transferred, pledged, or redeemed on an ongoing basis, subject to regulatory and contractual constraints. This enables designed liquidity, more efficient collateralisation, and granular participation without repeated physical delivery or legal re-registration.

Tokenised asset lifecycles involve a rebalanced set of actors. Asset originators generate underlying assets or cash flows; custodians or trustees anchor tokens to real-world assets; platforms manage issuance, compliance, and investor interfaces; and financial institutions increasingly treat tokens as live collateral or credit inputs. Regulators and registries continue to define legal validity and investor protection, even as transactions occur digitally.

Consultations highlighted the importance of distinguishing between governance-oriented tokenisation aimed at record integrity and auditability, and market-oriented tokenisation aimed at fractional participation and transferability.

Taken together, tokenisation does not replace existing market structures but complements them by enabling ownership and value to circulate closer to the asset itself. This positions tokenisation as an infrastructure layer that extends beyond pooled vehicles, supporting new forms of ownership, liquidity design, and credit formation across real estate, bullion, commodities, and receivables.

Broader Implications

Seen through this lens, tokenisation acts as a coordination layer across fragmented asset lifecycles. It aligns ownership accounting, verification, and transfer mechanisms with modern financial infrastructure, while leaving asset-specific law intact.

Global experience suggests that adoption tends to begin in permissioned, private environments, where stakeholders can agree on rules and regulators can observe outcomes. Over time, elements of these models inform broader market structures.

For India, where physical assets hold disproportionate economic value but remain operationally rigid, understanding lifecycle reconfiguration is critical. Tokenisation is not a shortcut around legal reform, but a mechanism that can make existing assets more legible, financeable, and participatory within the constraints of current law.

3.6 Grey Zones and Unresolved Questions in Physical Asset Tokenisation

Despite growing interest and experimentation, consultations consistently highlighted that physical asset tokenisation in India currently operates within a set of unresolved legal, institutional, and market grey zones. These gaps do not reflect a lack of technical capability or investor appetite, but rather the absence of clarity on how tokenised representations intersect with existing systems of rights, accountability, and risk allocation. In particular, participants

stressed that ambiguity around taxation and enforceability, rather than lack of investor appetite, remains the primary factor keeping physical asset tokenisation confined to pilots.

- a. **Legal Recognition and Enforceability:** Consultations consistently highlighted uncertainty around the legal status of tokenised claims. While tokens can represent economic exposure or contractual rights, there is limited clarity on when such representations would be enforceable against third parties. For land and real estate, experts emphasised that unless token transfers are recognised within formal state registration systems, they cannot create or extinguish rights in rem. As a result, tokenised fractions risk operating without legal finality, complicating dispute resolution and investor protection.
- b. **Property Law and Securities Regulation Interface:** Another unresolved area lies at the intersection of property law and securities regulation. Tokenised real estate and commodity structures often resemble pooled investment products in substance, even when framed as asset-backed participation. Across consultations, stakeholders flagged ambiguity around regulatory classification for hybrid instruments, creating uncertainty over jurisdiction, compliance obligations, and applicable investor protections.
- c. **Custody, Control, and Accountability:** Custody and accountability emerged as persistent concerns. While tokens can be transferred digitally, the underlying physical assets remain subject to traditional custody arrangements. Consultations raised questions around who bears responsibility for asset safeguarding, compliance, and risk management when multiple intermediaries are involved. In the absence of standardised custody norms, accountability can become fragmented, particularly when failures occur.
- d. **Secondary Markets and Transferability:** The feasibility of secondary trading remains contested. Although tokenisation is often associated with liquidity, stakeholders cautioned that secondary markets for physical asset tokens may conflict with registration requirements, stamp duty, and capital controls, especially for immovable assets. Even for movable assets such as gold or warehoused commodities, transfer rules and compliance obligations remain unclear.
- e. **Retail Participation and Investor Protection:** Retail access was widely viewed as premature. Consultations emphasised that tokenisation improves transferability, not asset fundamentals. Without mature disclosure standards, suitability norms, and grievance redressal mechanisms, early retail participation risks mis-selling and consumer harm.

- f. **Institutional Coordination and Sequencing:** Finally, consultations pointed to a lack of clarity around institutional ownership and sequencing. Physical asset tokenisation spans multiple regulators and levels of government. Experts stressed that without coordinated oversight and clear sequencing, tokenisation layered onto unresolved governance issues could amplify disputes rather than resolve them.

Asset Class	Legal Clarity of Rights	Custody Maturity	Regulatory Complexity
Land	Low (presumptive titles)	Low	Very high
Real Estate (Commercial)	Medium (via SPVs)	Medium	High
Gold / Bullion	High	High	Medium
Warehoused Commodities	Medium	Medium	Medium
Receivables	High	Medium	Low

[Table 4: Legal and Regulatory Readiness](#)

Taken together, these grey zones suggest that the challenge facing physical asset tokenisation in India is not whether it is possible, but under what conditions it becomes legitimate, scalable, and trustworthy. Consultations pointed to the need for clarity on rights, responsibilities, and regulatory boundaries before market expansion. Until these questions are addressed, tokenisation is likely to remain confined to pilots, permissioned environments, and institution-led experiments rather than broad-based adoption.

3.7 Key Recommendations

The consultations and global evidence reviewed in this report point to a clear conclusion. Physical asset tokenisation offers significant economic and governance upside across asset classes, but its viability at scale depends less on technological maturity and more on sequencing, institutional anchoring, and regulatory clarity. The objective, therefore, should not be rapid market expansion, but phased integration that allows benefits to accrue while risks are contained.

Strategic Pillar	Core Direction	Immediate Policy Focus
Sequenced and Controlled Adoption	Begin in permissioned, institution-led environments; avoid broad rollout	Prioritise gold, warehoused commodities, receivables, and commercial income-generating real estate; exclude land and residential real estate from market-facing models in near term
Regulatory and Legal Clarity	Provide asset-specific guidance before scale	Clarify securities classification, stamp duty and tax treatment, custody norms, foreign participation, and enforceability of tokenised interests
Governance Before Market Expansion	Distinguish registry-strengthening uses from capital-market uses	Separate governance tokenisation from market tokenisation; treat retail access as a later-stage outcome
Credit and Institutional Anchoring	Align tokenisation with productive capital formation, not speculative trading	Enable collateralisation and integration with regulated lending frameworks; expand sandbox-led pilots under supervised authorities

[Table 5: Key recommendations](#)

1. Start with Phased Adoption

Given the diversity of physical assets and their embedded legal and social characteristics, a one-size-fits-all approach to tokenisation is neither feasible nor desirable. A phased approach is essential.

Early-stage tokenisation should prioritise:

- assets with clear custody and valuation frameworks, such as gold, warehoused commodities, and receivables,
- real estate assets that are commercial, income-generating, and institutionally sponsored,
- and permissioned environments where participation, transferability, and disclosure can be tightly controlled.
- eligibility conditions for investors and the number of it,
- anti-money laundering and KYC checks;

Land and residential real estate, particularly where titles remain presumptive or socially embedded, should remain outside market-facing tokenisation in the near term. Here, the emphasis should remain on administrative and governance-focused uses, such as record integrity, verification, and auditability.

This sequencing mirrors global practice, where tokenisation has first taken hold in private markets and institutional contexts rather than open retail settings. This sequencing reflects stakeholder consensus that premature market-facing tokenisation, especially in real estate and bullion, risks failure without prior resolution of tax and legal treatment.

Asset Class	Primary Role of Tokenisation	Near-Term Market Suitability	Orientation
Land	Record integrity, verification	Not suitable	Governance
Real Estate (Commercial)	Capital formation, yield access	Selectively suitable	Market-led
Real Estate (Residential)	Limited economic rationale	Not suitable	Neither
Gold / Bullion	Custody-backed value	Suitable with safeguards	Market-led
Warehoused Commodities	Inventory financing	Suitable (permissioned)	Hybrid
Receivables	Credit and liquidity	Suitable	Market-led

[Table 6: Where Tokenisation Makes Sense First](#)

Distinguish Between Governance Tokenisation and Market Tokenisation

A central recommendation emerging from consultations is the need to explicitly separate governance-oriented tokenisation from market-oriented tokenisation.

Governance tokenisation focuses on:

- strengthening registries and record systems,
- improving traceability and auditability,
- reducing fraud and administrative delays.

Market tokenisation focuses on:

- capital formation,
- fractional participation,
- secondary transferability and liquidity.

Conflating these objectives risks legal confusion and public mistrust. Policymakers should recognise that not all assets need to be tokenised for trading in order to benefit from blockchain-based systems. Clear articulation of intent at the outset can prevent inappropriate market expectations and regulatory misalignment.

Asset Class	Preferred Investor Type (Initial)	Secondary Trading	Retail Access
Land	Government / Institutions	Not advisable	No
Real Estate (Commercial)	Institutional / Accredited	Controlled	Not initially
Gold / Bullion	Institutional and Retail	Regulated	Conditional
Warehoused Commodities	Institutional	Limited	No
Receivables	Banks, NBFCs, Funds	Limited	No

[Table 7: Market Design Choices](#)

Create Regulatory Clarity Through Asset-Specific Guidance

Rather than attempting to issue a single overarching framework, regulators should consider asset-specific guidance that clarifies how tokenisation interacts with existing laws.

Priority areas for clarification include:

- whether and when tokenised interests are treated as securities,
- how stamp duty, registration, and taxation apply to token transfers,
- how custody and trustee responsibilities are defined,
- and how foreign participation is assessed under existing capital controls.

Consultations consistently indicated that regulatory ambiguity is a larger deterrent to serious market participation than regulatory stringency. Clear boundaries, even if conservative, would enable responsible experimentation.

Anchor Early Experiments in Regulated and Permissioned Environments

Global experience shows that scalable tokenisation has largely emerged through regulated sandboxes, private markets, and institution-led pilots, rather than open, retail-facing platforms. Participants pointed to ongoing sandbox-led experimentation under the International Financial Services Centres Authority (IFSCA) as the most credible near-term pathway for testing tokenised physical asset models.

In the Indian context, this implies:

- expanding and refining sandbox approaches under bodies such as IFSCA,
- encouraging pilots led by regulated intermediaries rather than standalone technology platforms,
- and limiting early secondary trading to controlled environments with eligibility criteria.

This approach allows regulators to observe real-world behaviour, operational risks, and failure modes before broader market exposure.

Treat Retail Access as an Outcome, Not a Starting Point

While inclusion and democratisation are important long-term objectives, consultations strongly cautioned against positioning retail participation as an immediate goal.

Before retail access is expanded, foundational elements must be demonstrably in place:

- standardised disclosures that clearly distinguish economic exposure from ownership,
- bank-grade custody and audit mechanisms,
- defined grievance redressal and dispute resolution pathways,
- and tested cyber and operational resilience.

Tokenisation can widen access, but only after trust infrastructure is established. Premature retail exposure risks repeating earlier cycles of mis-selling and erosion of confidence in digital asset markets.

Leverage Tokenisation for Credit and Productive Use, Not Just Trading

One of the strongest economic arguments for tokenisation lies not in trading volume, but in unlocking credit and productive capital.

Policy attention should focus on:

- using tokenised representations of real estate cash flows, receivables, and commodities as collateral,
- improving access to formal credit for asset-rich but cash-constrained participants,
- and integrating tokenised assets into regulated lending and financing frameworks.

This orientation aligns tokenisation with broader economic objectives such as MSME financing, infrastructure development, and capital efficiency, rather than speculative activity (BCG, 2023).

Enable Institutional Coordination and Clear Accountability

Finally, tokenisation cannot succeed in institutional silos. Physical assets cut across multiple regulators, ministries, and levels of government. Consultations underscored the importance of:

- explicit coordination mechanisms,
- clarity on supervisory responsibility,
- and clear accountability when failures occur.

Rather than bypassing existing institutions, tokenisation efforts should be embedded within them, even at the cost of slower rollout. Long-term credibility depends on institutional ownership, not platform innovation alone.

Direction of Action

Taken together, these recommendations suggest a measured but forward-looking path. India need not rush to replicate global tokenisation models wholesale. Instead, it can build selectively, asset by asset, aligning tokenisation with legal clarity, governance reform, and economic priorities.

The opportunity is real, but so are the risks. The next phase should therefore be defined by sequencing over scale, credibility over speed, and institutional trust over novelty.

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