# Aave Labs

## Comment Letter on Central Bank of Ireland Discussion Paper 12

June 6, 2026

Central Bank of Ireland

New Wapping Street

Dublin 8, Ireland

Dear Governors and Members of the Discussion Paper Team:

Aave Labs welcomes the Central Bank of Ireland's Discussion Paper 12 on DLT and Tokenisation in Financial Services ("the Paper").[1] This thoughtful analysis of tokenisation's implications for European financial infrastructure raises critical questions about the institutional design of digital finance. We appreciate the opportunity to provide our perspectives on how tokenisation can deliver sustainable benefits whilst managing associated risks.

This response is submitted by Aave Labs on behalf of the wider Aave group. The group includes Push Virtual Assets Ireland Ltd, a Cryptoasset Service Provider (CASP) authorised by the Central Bank of Ireland under the Markets in Crypto-Assets Regulation (MiCAR), along with two UK entities that are regulated by the FCA. This response draws on the group's experience of regulated financial services activity in the EU and decentralised finance infrastructure globally.

Our core position is straightforward: tokenisation can significantly improve European financial efficiency only if designed around interoperable, public infrastructure anchored in clear regulatory frameworks. This letter addresses the Paper's key questions, focusing on the strategic choice between fragmented, isolated systems and integrated, resilient global infrastructure.

Yours faithfully,

Linda Jeng

Chief Legal & Policy Officer

Aave Labs

## Executive Summary

The central tension in tokenisation policy is whether European institutions will leverage interoperable global infrastructure or recreate market fragmentation in digital form. Our recommendations address three interconnected challenges:

- Enabling regulatory clarity on public blockchain infrastructure as a legitimate foundation for regulated financial services, and recognising that they demonstrate superior operational resilience compared to permissioned networks.
- Ensuring that tokenisation regulatory frameworks support interoperability at scale, avoiding the creation of isolated regional DLT systems that reproduce the fragmentation the technology is meant to solve.
- Prioritising application-layer accountability and outcomes-based regulation over prescriptive requirements for infrastructure architecture.

The Paper itself acknowledges a critical historical precedent: over a decade after the post-Global Financial Crisis reforms envisioned an "internet of assets" through interoperable CSDs, consolidation has not materialised, and fragmentation persists.[2] Tokenisation built on fragmented, jurisdiction-specific DLT systems risks repeating this pattern at greater complexity, friction and cost.

## Aave, DeFi and Tokenisation

Aave Labs is the core service provider of the Aave Protocol, the largest decentralised collateral protocol globally that has supported $14.49 billion in total value locked as of May 2026[3] across over fifteen blockchain networks. We have direct experience with how tokenisation enables new forms of capital efficiency, particularly for institutions seeking to optimise asset utilisation and access global liquidity markets.

Through Push Ireland, our CBI-regulated subsidiary, we operate on-ramping and off-ramping services, demonstrating how regulated financial services can be provided on public blockchain infrastructure whilst meeting supervisory expectations. This regulatory experience informs our responses to the Paper.

Our interest in the CBI's Paper reflects a fundamental conviction: tokenisation's benefits are only realised through interoperable infrastructure that enables institutions to move seamlessly between regulated and decentralised environments. We do not advocate for any particular ledger or proprietary system; rather, we advocate for frameworks that preserve institutional choice and enable open, standards-based integration.

We have observed that when institutions gain clarity on regulatory frameworks and legal certainty, they rapidly adopt tokenised workflows—not because they are ideologically committed to blockchain, but because tokenisation delivers concrete operational improvements: faster settlement, reduced operational risk, improved capital efficiency, and access to new counterparties and liquidity pools. The policy framework matters profoundly to whether those benefits are realised or lost to fragmentation.

## RESPONSES TO DISCUSSION QUESTIONS

### Question 1: Additional Enablers for Tokenisation

A critical additional enabler is public permissionless blockchain infrastructure and regulatory support for interoperable public blockchain infrastructure.

The Paper identifies interoperability and standardisation as enablers, and we agree strongly. However, regulatory clarity on the status of public blockchain infrastructure itself represents a missing enabler the Paper does not fully address.

Currently, European financial institutions unnecessarily hesitate about the permissibility, advisability, or regulatory treatment of deploying on public blockchains like Ethereum. This chilling effect constrains infrastructure choice independently from the legal and technical questions the Paper identifies. However, clarity at the supervisory level would accelerate institutional adoption.

The financial system is already moving on-chain. The primary policy question is not whether finance becomes tokenised, but whether tokenised finance develops through interoperable and resilient global infrastructure or through fragmented, disconnected, and fragile regional systems. The greatest risk is that the EU approach recreates existing market fragmentation in technological form through isolated regional infrastructures, bespoke standards, and disconnected settlement environments.

Strong network effects in tokenised finance are increasingly emerging around interoperable public blockchain infrastructure such as Ethereum, which supports large-scale financial activity and provides shared settlement infrastructure, open technical standards, composability between applications, and global liquidity access. These characteristics enable assets, liquidity, and applications to interact

within shared execution environments rather than through fragmented bilateral systems. Furthermore, public permissionless blockchains demonstrate superior operational resilience through distributed consensus mechanisms.

Europe should avoid attempting to recreate entirely separate tokenised financial infrastructure stacks in parallel to global blockchain ecosystems. A more sustainable approach leverages interoperable public infrastructure where appropriate, whilst implementing regulatory, supervisory, and risk management safeguards at the application and institutional layers. Smart contracts, token standards, and programmable settlement logic can automate transfer restrictions, collateral management, compliance controls, and settlement processes directly within infrastructure. Regulatory frameworks should support legal certainty around these programmable systems, including ownership recognition, settlement finality, collateral treatment, and legal enforceability of token-based claims across jurisdictions.

## Question 2: Elements Constraining Scalable Tokenisation

A significant risk is that regulatory frameworks designed around traditional finance's structural assumptions may inadvertently constrain tokenised infrastructure design in unintended ways.

The Digital Operational Resilience Act (DORA) exemplifies this concern. The absence of a single controlling entity in public blockchain networks could be misread as a governance deficiency, even where underlying resilience properties are demonstrably strong. Applying DORA's third-party vendor oversight logic to public blockchain infrastructure represents a category error the regulation's framers likely did not intend.

DORA's vendor requirements assume a supplier relationship: a regulated entity contracting with an identifiable third party. Public blockchain infrastructure does not fit this model. Financial institutions do not contract with or audit TCP/IP, the Linux kernel, or the broader open-source software stack on which critical systems depend. Regulatory frameworks should focus on whether applications are resilient and operational dependencies understood at the layer institutions actually operate, not on whether they control the underlying protocol.

A second and more consequential constraint is the risk of fragmentation at the infrastructure layer. Frameworks that implicitly favour closed, bespoke, or regionally isolated DLT systems over interoperable public infrastructure risk producing the very outcome tokenisation is meant to solve. The EU's post-GFC settlement reforms envisioned an integrated "internet of assets"; over a decade later, consolidation has not materialised. Tokenisation built on fragmented jurisdiction-specific infrastructure risks repeating this pattern at greater cost, since disconnected DLT environments require additional bridge layers, bespoke integrations, and reconciliation processes.

Push Ireland's regulatory compliance experience shows that public infrastructure need not constrain institutional operations. Push Ireland's arrangements with the CBI focus on compliance, governance, and supervisory oversight—not on whether we operate on public or proprietary networks.

Regulatory frameworks should remain genuinely technology-neutral, focusing requirements on activities, governance outcomes, and operational resilience rather than prescribing or inadvertently favouring particular infrastructure architectures.

## Question 3: Legal Clarifications Needed

Legal recognition of tokenised assets as definitive proof of ownership, settlement finality on distributed ledgers, and enforceability of smart contracts—particularly cross-border—are essential for scaling tokenisation. However, achieving this requires deeper action: harmonised updates to private commercial law frameworks across Ireland and EU Member States.

Existing EU private commercial law frameworks—property law, secured transactions regimes, custody standards, settlement finality rules—were designed for physical assets or dematerialised securities recorded in centralised registries. Tokenisation introduces a fundamentally new form of asset representation: directly transferable digital objects recorded on distributed ledgers. This new form does not fit cleanly into either existing legal categories of tangible and intangible assets.

The foundational legal question is not merely whether tokens represent assets, but how ownership and control of digital assets are recognised, transferred, and protected under law. This distinction between control and ownership—particularly critical in digital contexts where possession is cryptographic rather than physical—is underexplored in current legal frameworks. As established in recent scholarship on digital asset law, the control/ownership distinction becomes legally determinative when assets exist as programmable objects on shared ledgers.[4]

Tokenised records must be legally recognised as constituting enforceable ownership claims. Without such clarity, participants will remain hesitant to transact in tokenised form at scale. Market participants require assurance that settlement finality achieved on a distributed ledger is legally recognised across jurisdictions, and that token transfers correspond to final and irrevocable transfers of the underlying legal claim.

Smart contract enforceability requires clarity on liability and recourse in the event of coding errors or operational failures. Legal frameworks should establish that smart contracts constitute binding execution of pre-agreed terms, whilst preserving traditional legal remedies for disputes regarding contract interpretation or implementation.

Cross-border legal certainty is particularly critical. Tokenised assets that move across borders at machine speed require legal frameworks that recognise ownership and finality consistently across jurisdictions. EU-level harmonisation of tokenisation-specific legal frameworks—grounded in updated principles of digital asset ownership and control—would reduce legal uncertainty and support the development of genuinely integrated cross-border tokenised markets.

## Question 4: Governance Arrangements for Tokenised Markets

Public blockchain infrastructure should not be viewed as inherently incompatible with regulatory accountability or supervisory oversight.

Public blockchains such as Ethereum are open settlement and execution environments. They do not prevent regulated financial applications, nor are they inherently incompatible with compliance, supervision, or investor protection. Regulated financial applications can and do operate on public blockchain infrastructure.

The Paper's concern about the absence of a clear locus of accountability in permissionless systems deserves serious consideration. However, this framing locates accountability at the wrong level. Public blockchain infrastructure is analogous to foundational internet infrastructure—it is not owned or controlled by any single entity, and that is precisely what makes it trustworthy as neutral shared infrastructure. Regulators do not supervise TCP/IP; they supervise the firms and institutions building financial services on top of it.

The accountable layer in tokenised financial markets built on public blockchains is the application layer: the firms, developers, and institutions building regulated products and services, seeking authorisation, engaging with supervisors, and willing to be held responsible for their operations. These entities are identifiable, and many actively seek constructive regulatory engagement. The Central Bank's supervisory tools—authorisation, conduct requirements, operational resilience standards, governance expectations—are most effectively directed at this layer.

Push Ireland exemplifies this: we are identifiable, authorised, supervised, and fully accountable to the CBI. The fact that Push provides on- and off-ramps to access

services on the Aave Protocol, which is built on public infrastructure, does not diminish regulatory accountability; it enhances supervisory visibility (on-chain activity is transparent) whilst reducing supervisory data access burden.

Regarding operational fragilities in permissionless networks (settlement finality, immutability, forks), mature public blockchain infrastructure like Ethereum demonstrates resilience properties worthy of comparative assessment. These systems have undergone over a decade of adversarial testing at scale, processing trillions of dollars of transactions, surviving stress events, and hardening through continuous open exposure.

[5] Bespoke permissioned systems, by contrast, harden more slowly and with less adversarial pressure, often operated by narrower participant sets with fewer independent eyes on code and infrastructure.

The Bank of England's DLT Innovation Challenge found that public permissionless networks are capable of supporting regulated financial applications through controls implemented at application and execution layers.

[6] This finding supports the view that permissionless systems are not inherently incompatible with regulatory accountability.

## Question 6: Critical Infrastructure Developments for Scalability

Interoperability should be built through: open standards; cross-chain protocols; common settlement frameworks; harmonised messaging standards; and portable identity and credentialing systems.

The key challenge is not merely technical connectivity between ledgers, but whether standards, settlement semantics, identity systems, legal recognition, and operational processes can function consistently across infrastructures and jurisdictions. Poorly coordinated tokenisation efforts could simply recreate existing silos and operational complexity in digital form.

Public blockchain ecosystems already provide globally shared execution environments with interoperable liquidity, programmable settlement layers, collateral mobility, and composability across applications. Bank of England research notes that protocol-level interoperability and native composability provide stronger atomic settlement guarantees than fragmented systems relying on external bridges.[7]

Recent work by DTCC, Clearstream, and Euroclear similarly argues that interoperability is foundational for scalable tokenised financial markets.

[8] Their 2026 framework cautions that fragmentation across emerging DLT networks could recreate operational silos, trapped liquidity, and inefficient market structures, and instead advocates for common standards and interoperable market infrastructure across traditional and decentralised environments.

Push Ireland's participation in multiple blockchain ecosystems demonstrates that regulated entities can operate interoperably across infrastructure, rather than being

locked into single proprietary systems. This validates the principle that interoperability supports rather than constrains regulatory compliance.

## Question 7: Distinguishing Regulation Across Tokenisation Levels

Regulatory frameworks should distinguish between tokenisation at infrastructure, portfolio, and instrument levels, with regulatory focus proportionate to each level's systemic importance and risk profile.

At the infrastructure level, regulation should prioritise operational resilience, governance transparency, interoperability standards, and settlement finality. Regulatory focus should concern the robustness of shared ledgers, consensus mechanisms, and the resilience of critical functions—not the ownership structure or architecture choices of the underlying protocol.

At the application layer—where institutions issue tokenised instruments, manage funds, or provide services to end-users—regulation should focus on conduct, compliance, investor protection, and institutional governance. This is where existing regulatory tools (authorisation, conduct requirements, operational resilience standards) apply with full force.

At the instrument level, regulatory classification should follow substance-over-form principles. A tokenised bond is a security and should be regulated as such; a tokenised fund unit is an investment product and should follow fund regulations. Tokenisation does not change the underlying economic substance or the applicability of relevant regulatory frameworks.

This tiered approach supports genuine technology neutrality: regulation focuses on activities, outcomes, and institutional responsibility, rather than prescribing or inadvertently favouring particular infrastructure architectures or ledger designs.

## Question 8: High-Value Use Cases for Investment Funds

Institutional adoption is already measurable. Federal Reserve Governor Lisa Cook confirmed that tokenised assets in the United States have more than doubled in market capitalisation over the past year, reaching approximately $25 billion, with collateral and liquidity management identified as the primary institutional use case driving adoption.[21]

Cook identified tokenisation as capable of improving efficiency across the financial system, including faster settlement times and more effective recordkeeping, whilst improving cross-border payments and access to capital markets.[21]

The most transformative opportunity extends beyond digitising fund units to enabling programmability and composability within blockchain-native financial infrastructure.

Blockchain infrastructure allows financial assets to become directly interoperable within shared execution environments. Emerging on-chain lending markets demonstrate how tokenised treasuries and money market funds can operate within programmable collateral and liquidity systems, enabling institutions to borrow against tokenised assets whilst retaining exposure to underlying instruments.

Beyond traditional fund structures, the most significant opportunity is enabling institutional borrowing against tokenised real-world assets (RWAs). Financial institutions—banks, asset managers, insurance firms—increasingly seek to deploy capital efficiency improvements by using assets that generate yield to simultaneously serve as collateral for borrowing. For example:

- A bank holding tokenised corporate bonds or trade finance instruments can deposit these on a decentralised lending protocol to borrow stablecoins or digital

euro, funding additional market-making or lending operations, whilst the underlying bonds continue to generate coupon payments.

- An asset manager holding tokenised real estate or infrastructure investments can use these as collateral to access short-term liquidity for redemptions or rebalancing, rather than force-selling positions at unfavourable prices.
- A financial institution with tokenised treasury securities can participate in automated repo and lending markets, accessing better pricing and broader counterparty sets than available through bilateral correspondent banking relationships.

This represents meaningful evolution from static ownership records toward programmable financial infrastructure where collateral, liquidity, and settlement interact continuously within shared execution environments. Assets function as programmable collateral primitives; settlement becomes embedded within applications; liquidity management becomes automated; and compliance controls can increasingly be implemented directly through smart contract systems.

Blockchain infrastructure should not be viewed solely as alternative settlement technology, but increasingly as a programmable coordination layer for financial activity. The long-term opportunity may emerge less from replicating existing market structure on-chain and more from enabling interoperable financial infrastructure capable of supporting new forms of lending, collateral management, and liquidity formation.

## Question 10: Effective Regulatory Monitoring of Tokenised Developments

Public blockchain infrastructure provides inherent transparency and auditability that supports efficient regulatory monitoring without requiring bespoke data access arrangements.

A critical underappreciated supervisory property of permissionless blockchain systems is that activity, collateral positions, settlement flows, and governance actions are observable in near real-time by anyone, including regulators, without requiring proprietary data feeds or bilateral reporting arrangements. This transparency far exceeds what fragmented permissioned systems can offer.

Regulators can monitor tokenised markets effectively by: (1) developing internal capacity to interpret on-chain data and analytics; (2) requiring regulated institutions to clearly document their on-chain operations and smart contract dependencies; (3) establishing shared data infrastructure that aggregates on-chain activity for supervisory analysis; and (4) embedding supervisory nodes within critical ledgers to maintain real-time visibility.

The key advantage of public blockchain infrastructure is that supervisory visibility is not dependent on the cooperation or compliance of any single intermediary. In fragmented permissioned systems, by contrast, supervisory reach depends entirely on bilateral data-sharing arrangements with multiple proprietary ledger operators, each with different technical standards and governance arrangements. This fragmented approach is more operationally complex and more vulnerable to supervisory gaps.

## Question 11: Cross-Border Interoperability and Regulatory Fragmentation

Cross-border interoperability should be a foundational policy objective for tokenised financial markets.

The key risk is not insufficient technical connectivity, but fragmentation arising from disconnected infrastructure environments that recreate market silos in digital form. Ireland and the EU has an opportunity not only to participate in the emerging on-chain economy, but to help shape the standards, governance models, and frameworks underpinning it.

Public blockchain ecosystems already operate as globally shared execution and liquidity environments. Europe should prioritise compatibility and interoperability with broader blockchain-based market infrastructure rather than pursuing isolated systems disconnected from global liquidity and innovation networks.

## Question 12: Payment System Efficiency Gains from Tokenisation

Tokenised payment infrastructure offers material efficiency gains across multiple dimensions: settlement speed, operational cost, hours of operation, and access to liquidity. Near-term adoption depends on availability of regulated, MiCAR-compliant settlement assets, whilst digital euro implementation matures.

The feasibility of tokenised payment infrastructure is no longer theoretical. The Bank for International Settlements' Project Agorá, a collaboration between seven central banks and more than 40 global financial institutions including JPMorgan, HSBC, Deutsche Bank, and Swift, has demonstrated that tokenisation can address inefficiencies in wholesale cross-border payments through multi-currency settlement using tokenised central bank reserves and tokenised commercial bank deposits, with atomic settlement achievable securely across currencies and jurisdictions.[20]

The prototype enables central banks to retain autonomy over national currencies within an interoperable shared platform, targeting four longstanding friction points: settlement speed (completing in seconds), efficiency through parallel compliance checking, transparency enabling real-time payment status tracking, and risk reduction through atomic settlement.[20]

Cross-border B2B payments currently take 3-5 business days and incur an average cost of 6.3% of transaction value, [9] including foreign exchange markups, correspondent banking fees, and compliance charges. This cost structure reflects the structural inefficiencies of the correspondent banking model. For a manufacturer in Vietnam paying a €100,000 invoice to a supplier in Germany, the total cost of the payment, including time value of money during the settlement window, significantly exceeds the invoice amount.

The legacy system for cross-border payments relies on correspondent banking networks where payments pass through multiple intermediary banks, each taking a cut of $15-$50 per transaction plus an FX spread of 0.5%-2%.[10] Settlement happens through central bank clearing systems operating on different schedules across time zones. This multi-day, multi-intermediary chain is the source of friction costs.

Institutional research notes that cross-border payments currently fail to meet the Financial Stability Board's target of 1% average global cost, with B2B global average currently at 1.5%.[11] Tokenised payment infrastructure—utilising both regulated stablecoins and the digital euro once available—could materially reduce these costs whilst eliminating settlement delays.

Global B2B cross-border payment volumes exceed $42.7 trillion annually as of 2026,[12] with intra-EU goods trade alone accounting for approximately €4.1 trillion.[13] Even a 1-2% reduction in total friction costs through tokenised infrastructure would represent material efficiency gains for European institutions and the broader economy.

We recommend the Central Bank establish explicit regulatory guidance recognising settlement finality on recognised distributed ledgers, develop clear pathways for EUR-denominated stablecoins to support near-term adoption, conduct pilot programmes testing tokenised asset activities with regulated stablecoins and eventually digital euro, coordinate with the Eurosystem on digital euro integration timelines and complementary stablecoin frameworks, and work internationally on interoperability standards supporting multiple settlement asset options.

## Question 13: Operational Resilience and Risk Management in Tokenised Finance

Tokenised financial systems introduce operational risks requiring layered mitigation. However, many of these risks are either new variations of existing operational risk categories or are substantially lower in public infrastructure than in alternatives.

Operational resilience requires examination across three layers:

### Infrastructure Layer: Consensus Resilience and Network Robustness

Ethereum has operated continuously since 2015, processing over 3.47 billion transactions[14] with 100% uptime and zero unrecovered failures despite network stress, adversarial testing, and protocol upgrades. This track record provides empirical evidence that public blockchain consensus is substantially more resilient than traditional infrastructure.

Public blockchains are designed around byzantine fault tolerance: they continue functioning correctly when network partitions occur or nodes fail, with no single entity controlling settlement rules.

### Application Layer: Smart Contract Risk and Execution Safety

Smart contract vulnerabilities can cause unintended execution. Mitigation includes code auditing by security firms, formal verification techniques, staged rollouts, and insurance products. Dependency risk exists but is substantially lower in public infrastructure due to transparency, rapid patching, economic incentives, and liquidity enabling rapid exit from risky applications.

### Institutional Layer: Governance, Custody, and Operational Control

High-value institutional transactions require approval by multiple officers with cryptographic signatures from each. Multi-signature governance provides governance resilience equivalent to traditional systems. Collateral monitoring and liquidation risks are managed through real-time monitoring by independent liquidators with financial incentives. Disaster recovery requires distributed key management, multi-signature governance, insurance, and regulatory backup procedures. Push Ireland implements these protections through distributed cold storage, multi-signature authorisation, comprehensive insurance, and CBI coordination.

Comparative Risk Assessment: Operational risks in public permissionless infrastructure often compare favourably to permissioned alternatives. Public systems operate with larger node sets providing adversarial hardening, lack central control preventing single-actor manipulation, implement rapid protocol updates through transparent governance, and have over a decade of operational history. Permissioned systems operate with smaller node sets, often under single vendor control, require bilateral coordination for protocol updates, and have limited operational history.

We recommend the Central Bank establish operational resilience standards proportionate to risk rather than prescribing infrastructure choices, recognise that operational resilience on public infrastructure can exceed permissioned alternatives, support development of industry standards for smart contract security, and enable regulated institutions to operate on multiple infrastructure platforms.

## Question 14: Eurosystem Exploratory Initiatives (Pontes and Appia)

The Eurosystem's initiatives are constructive and represent meaningful progress toward regulated on-chain settlement. Their long-term success depends critically on design choices that remain unresolved, particularly eligibility criteria for DLT platforms connecting to Pontes.

The Cassa Depositi e Prestiti experiment is instructive: it settled the asset leg on a public, permissionless, EVM-compatible blockchain whilst complying with regulated settlement requirements.[15] This data point—Eurosystem participants deemed public blockchain infrastructure sufficiently viable to test within regulated settlement—suggests that public permissionless infrastructure can combine with off-chain operational steps to support primary issuance under regulatory framework.

Architecture choices made early tend to persist. If Pontes eligibility consolidates around permissioned-only platforms during the pilot, Appia may inherit this orientation through accumulated technical assumptions rather than explicit policy choice. The result would be settlement infrastructure with limited interoperability with public blockchain ecosystems where liquidity and activity are concentrating.

Europe has a genuine opportunity to design Appia around standards-compatible interfaces enabling regulated interaction with both permissioned and public networks. This choice is more available now than after the Pontes pilot has hardened design assumptions into defaults.

We recommend the Central Bank ensure Pontes design prioritises interoperability with both permissioned and public networks.

## Question 15: Additional Risks in Tokenised Finance

A critical underappreciated risk is that regulatory design itself could inadvertently push tokenisation toward infrastructure models that are less transparent, less resilient, and less interoperable than alternatives.

Public blockchain infrastructure offers a meaningful supervisory property: activity, collateral positions, settlement flows, and governance actions are observable in real time by anyone, including regulators, without bespoke data access. However, fragmented tokenisation built on isolated permissioned ledgers may actually reduce supervisory visibility relative to today, replacing a small number of regulated intermediaries with multiple proprietary systems each requiring separate data access negotiations.

A related risk is architectural lock-in. Decisions about which infrastructure models are eligible or implicitly favoured will shape tokenised financial systems for considerable time. If those decisions embed a preference for closed or regionally isolated systems—even unintentionally through operational risk rules or eligibility criteria—the cost extends beyond near-term efficiency loss to a more fragmented and less resilient financial architecture longer-term. Regulatory design should avoid inadvertent favouring of less transparent, less resilient architectures.

## Question 16: Regulatory Framework Sufficiency and Targeted Adaptations

The structural implications of tokenisation extend beyond operational efficiency to fundamental questions of financial system design. The International Monetary Fund's 2026 analysis characterises tokenisation as a structural shift in financial architecture rather than a marginal efficiency improvement, arguing that the long-term success of tokenisation depends on anchoring digital finance in public trust through clear policy frameworks, safe settlement assets, robust governance of code, legal certainty, and international coordination.[22]

Tokenisation collapses sequential, institution-dependent processes into single, automated workflows: settlement that once took days can happen in seconds, compliance rules can be embedded directly into assets, and risk management can be executed by code rather than by back-office teams.[22]

Existing regulatory principles around investor protection, operational resilience, governance, and market integrity remain broadly applicable in tokenised markets. However, targeted adaptations may be warranted where tokenised infrastructure interacts with fragmented legal and operational frameworks.

In particular, greater legal clarity may be required around digital ownership, enforceability of claims, and settlement finality across European markets. A key challenge for scalable tokenisation is ensuring that tokenised representations correspond to legally enforceable rights across jurisdictions. Financial regulatory frameworks can support greater harmonisation and legal certainty around digital asset ownership, custody arrangements, and transferability across the European

system—particularly if tokenised infrastructure is to support genuinely interoperable cross-border capital markets rather than fragmented national implementations.

Specific regulatory clarifications warranted:

- DORA: Supervisory guidance clarifying that public blockchain infrastructure does not create a regulatory gap, and that vendor oversight requirements are appropriately directed at application-layer service providers rather than protocol layers.
- Settlement Finality: Legal certainty that settlement finality achieved on recognised distributed ledgers is legally recognised across jurisdictions.
- Technology Neutrality: Explicit frameworks ensuring that regulation focuses on activities, outcomes, and institutional governance rather than prescribing infrastructure architecture, thereby preventing inadvertent favouring of isolated systems over interoperable ones.

## Foundational Prerequisite: Harmonised Private Commercial Law Reform for Digital Assets

Whilst regulatory and supervisory frameworks are essential, a more fundamental prerequisite underpins the entire tokenisation agenda: harmonised reform of private commercial law across Ireland and EU Member States to recognise and protect digital asset ownership and control.

Existing EU private law frameworks—governing property, secured transactions, custody, and asset transfer—were designed for a world of physical possession or centralised dematerialised registries. Digital assets do not fit neatly in either paradigm. When assets exist as programmable objects on distributed ledgers, the traditional legal categories of ownership, possession, and transfer require conceptual updating. In particular, the distinction between control and ownership—where control is cryptographic rather than physical—becomes legally determinative for questions of asset protection, collateral enforcement, and cross-border recognition.[16]

Current legal gaps create material uncertainty: Custody and asset segregation rules were written assuming traditional custodians and physical asset stores. How do these apply when a custodian holds cryptographic keys on behalf of clients? Secured transactions law assumes bilateral relationships and registered security interests. How are collateral interests recorded and enforced when tokens are held on distributed ledgers and transferred via smart contracts? Settlement finality rules recognise settlement through centralised systems. What is the legal status of settlement achieved through consensus mechanisms on public blockchains? Cross-border asset transfer law relies on jurisdictional boundaries and recognised

intermediaries. How are rights to digital assets recognised when they move instantaneously across borders on global networks?

These are not regulatory questions—they are foundational legal questions about property rights, asset protection, and enforceability. Without harmonised updates to private commercial law frameworks across EU Member States, even the most well-intentioned regulatory clarity will rest on uncertain legal foundations.

## Ireland's Current Framework and Comparative Solutions

Ireland's current legal framework—particularly company law and the Irish Collective Asset-management Vehicles Act 2015 (ICAV Act)—does not adequately address how digital asset ownership, transfer, and collateral enforcement function when assets are recorded on distributed ledgers.[17] This contrasts with other jurisdictions that have moved forward with targeted legal reforms demonstrating viable approaches:

The United Kingdom has introduced a new legal category called "data objects"—assets that exist primarily in digital form but with legally recognised ownership rights and transfer mechanisms.[18] This represents a third asset type alongside tangible and intangible property, providing statutory clarity for digital asset ownership and enabling legal treatment of tokenised assets in common law frameworks.

Luxembourg's narrow but pragmatic model provides an operational approach. Its Securitisation Law (as amended by Blockchain Laws I through IV) created a proven framework for tokenised asset issuance and transfer on distributed ledger technology. The Securitisation Law governs the issuance of securitised assets, whilst the Blockchain Laws enable DLT-based transfer, collateral treatment, and the "control agent" model for issuance oversight. However, a more comprehensive and conceptually robust framework emerges from the US UCC Article 12 approach.

In the US, UCC Article 12 establishes "Controllable Electronic Records" (CERs) as a new legal construct covering any digital token where a person can exercise exclusive control, exclude third parties, and transfer rights without depending on intermediaries. Critically, Article 12 directly addresses the control/ownership distinction—the foundational gap in existing legal frameworks. Control, in the UCC 12 sense, means the power to avail oneself of the asset and transfer it, independent of

ownership in the traditional sense. This distinction is essential for tokenisation: cryptographic control (private key possession) is separable from legal ownership, and UCC Article 12 provides statutory clarity on how each operates.

The scope of UCC Article 12 extends beyond securities to encompass all digital assets meeting the CER definition—including tokenised real-world assets, collateral representations, cross-border claims, and hybrid instruments that existing frameworks struggle to classify. Perfection by control creates "super-priority" status, enhancing the security of collateral positions in ways Luxembourg's securitisation-focused framework does not address. Adopted in 33 US states (including New York, California, and Texas), UCC Article 12 provides empirical evidence of scalability and market acceptance.

Ireland should pursue a two-stage approach: (1) near-term, adopt Luxembourg's Securitisation Law model for tokenised securities issuance, leveraging its proven operational framework; (2) longer-term, harmonise private commercial law toward UCC Article 12 principles, extending control-based ownership recognition across all digital asset classes. This positions the EU not as a follower of existing frameworks, but as an innovator synthesising pragmatic implementation with conceptually superior legal structures. The control/ownership distinction, properly embedded in statute, becomes the foundation upon which all digital asset law rests.

## Conclusion

Tokenisation represents a genuine opportunity for Europe to deepen capital market integration, reduce operational friction, and improve cross-border efficiency. However, realising these benefits requires commitment to interoperability as a foundational principle rather than a post-hoc consideration.

The central policy question is not whether Europe adopts tokenisation, but how: through interoperable global infrastructure that preserves institutional flexibility and leverages proven resilience properties, or through fragmented regional systems that recreate existing inefficiencies in technological form.

Regulated settlement assets—including MiCAR-compliant stablecoins and eventually the digital euro through Pontes and Appia—can serve as native settlement assets for institutional lending markets. Financial institutions could deposit tokenised real-world assets (bonds, mortgages, trade finance, real estate) as collateral to borrow against settlement currency at competitive rates—creating an entirely new institutional lending ecosystem that operates continuously, settles atomically, and provides rates more efficiently than traditional correspondent banking.

This vision is not theoretical. Institutions are already experimenting with these workflows on existing infrastructure. Push Ireland operates within this emerging ecosystem, demonstrating how regulated financial services can provide the institutional on-ramps and off-ramps enabling secure, compliant participation in tokenised markets.

What institutions need is regulatory clarity: certainty that depositing tokenised assets as collateral is permissible under DORA, that settlement finality on distributed ledgers

is legally recognised, that MiCAR-compliant stablecoins can function as interim settlement assets, and that digital euro can eventually serve as the preferred settlement asset for these transactions. Aave Labs and similar platforms stand ready to provide the technical infrastructure; European policymakers now determine whether this infrastructure can operate freely.

We strongly encourage the Central Bank to prioritise regulatory clarity on public blockchain infrastructure, maintain genuine technology neutrality in supervisory frameworks, support near-term adoption through regulated stablecoin pathways, and coordinate internationally to establish interoperability standards that enable seamless cross-border settlement and market integration.

We welcome further dialogue on these topics and would be pleased to provide additional detail or evidence to support the Central Bank's analysis.

Sincerely,

[Signature Block]

Aave Labs

## CITATIONS AND ATTRIBUTIONS

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