TOKENOVATE

Novat:
A Programmable Settlement Protocol for Tokenised Assets

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Abstract:

Settlement remains the least programmable and most fragmented layer of the financial system. The Novat Protocol addresses this by providing a programmable, tokenised settlement framework that unifies contractual, operational, and custodial layers within a single synchronised workflow. Built on the FINOS Common Domain Model, it encodes contractual obligations in machine-readable form and transforms them into deterministic settlement events executed both on-chain and through existing custodial systems. Each Novat functions as a single-use, on-chain representation of an asset, created at immobilisation and extinguished once title is updated, ensuring one-to-one correspondence between digital and legal records. Technically, the Novat is implemented on a UTXO-based blockchain, providing atomic settlement, scalability, privacy, and auditable provenance. Legally, the Novat operates by synchronising on-chain and off-chain title records, achieving dual operational and legal finality. By combining open standards, deterministic execution, and legally verifiable design, the Novat Protocol establishes a neutral and interoperable foundation for tokenised settlement, bridging traditional market infrastructure and emerging decentralised financial systems.

1. Introduction

Settlement remains the least programmable and most fragmented layer of the financial system. While trades execute in microseconds, post-trade obligations are still met through asynchronous custodial messaging, manual reconciliation, and end-of-day batching.

The scale of the challenge is significant. Daily margin and collateral flows under derivatives and financing agreements now exceed cash-equities volumes, but these obligations still pass through multi-day T+2 settlement cycles. Each day of delay forces firms to hold excess reserves of high-quality liquid assets, which inflates costs and constrains balance-sheet capacity. Research by Tokenovate shows that during recent periods of market stress, such as the COVID-19 pandemic and the Russia–Ukraine conflict, moving from T+2 to T+0 settlement could have reduced exposures by 60–80%[1]. This would have significantly lowered opportunity costs and released liquidity for use in lending, trading, and risk management. At an industry-wide scale, such improvements could unlock billions of dollars currently tied up in margin accounts, reducing funding costs and allowing capital to flow into more productive activities like market-making and investment.

Novat is a programmable, tokenised settlement protocol, designed to address these weaknesses. It unifies contractual obligations, custodial records, and payment systems within a single synchronised

[1] Research conducted by Tokenovate: https://www.tokenovate.com/insights/papers/

workflow. It enables settlement to be executed as code, deterministically, transparently and in full alignment with established legal and custodial frameworks.

2. A History of Financial Innovation

A recurring criticism of distributed ledger technology is that it is a solution in search of a problem. In fact, over the past decade, thousands of tokens have been created, many with no clear economic purpose. This criticism carries weight because, historically, real financial innovation has never occurred in this way. For thousands of years, new instruments have emerged to meet specific societal and commercial needs. They were designed to solve real problems, and in doing so, they reshaped the financial system and the world.

The first great financial innovation was standardisation. Beginning with silver weight systems in Mesopotamia and later with coinage, standardisation created a universal measure of value. As trade expanded, the cost and risk of moving precious metals led Florentine bankers to invent bills of exchange, allowing value to move on paper and enabling long-distance commerce at scale.

As trade routes stretched across continents, a new problem emerged: trust. Merchants could not rely on the solvency of distant buyers. The letter of credit solved this by inserting the reputation of a bank into the transaction. Sellers no longer depended on counterparties but on the guarantee of institutions. Trust itself became transferable, and global trade flourished.

Over time, the question of trust shifted from what was traded to how ownership was recorded. For centuries, bearer certificates conferred title through possession, but at scale they proved fragile and vulnerable to loss, theft, or destruction. From the 1980s, markets shifted towards dematerialised securities, recorded electronically in centralised registries. Efficiency improved, but new frictions emerged: fragmented custodial chains, reconciliation delays, and limited cross-border mobility. The same problems now reappear in distributed ledger systems, where isolated networks and brittle cross-chain bridges recreate the very fragmentation they sought to replace.

The pursuit of efficiency has revealed a deeper paradox: standardisation is the foundation of trust, yet when pursued in isolation through competing data models, protocols, and registries, it fragments markets and erodes the very trust it was meant to secure. What once provided a common foundation for exchange has splintered into rival rulebooks and technologies, each asserting authority over how value is held and transferred. The languages of settlement have multiplied, and trust, once rooted in shared standards, has become dispersed across systems that no longer communicate.

Novat is designed to re-establish trust through standardisation. It restores the qualities once associated with bearer instruments but in a form fully compatible with both dematerialised and natively digital markets. It establishes a common, programmable layer for representing obligations and coordinating settlement across fragmented systems, creating a shared foundation of trust in an otherwise disconnected financial landscape.

3. Tokenised Settlement

What is Tokenised Settlement?

Tokenisation is the legal and technological process of creating a digital representation of an asset or obligation on a blockchain. Settlement is the act of discharging obligations through the transfer of cash or securities, making the transaction final and irrevocable.

Tokenised settlement combines these concepts. It uses blockchain-based tokens to represent financial assets or settlement obligations and achieves final settlement through the transfer of those tokens in a way that remains interoperable with existing post-trade processes.

Requirements for Effective Tokenised Settlement

Achieving true settlement efficiency requires more than faster technology. Any credible framework for tokenised settlement in capital markets must satisfy three essential tests:

- **Legal Enforceability:** The legal nature of a tokenised asset, and the mechanism by which ownership and associated rights are transferred, must be unambiguous. This clarity is what ensures that transfers are effective not only in normal operation but also in the event of default or insolvency.
- **Settlement Finality:** Settlement must result in a legally irrevocable and enforceable transfer of title. Without legal finality, technical completion on-chain carries no true settlement value.
- **Liquidity Optimisation:** Efficient markets depend on the free movement of assets for trading, collateralisation, and reuse. Many current tokenisation models fail this test by detaching digital tokens from the official title register or by confining them to isolated blockchains, fragmenting liquidity and undermining capital efficiency.

4. The Novat Protocol

The Novat Protocol has been developed to meet these three tests, providing a legally robust, operationally efficient, and liquidity-preserving framework for tokenised settlement.

What is a Novat?

A Novat is a single-use, on-chain representation of an asset created solely for tokenised settlement.

It is transferred atomically and extinguished once the authoritative register of title is updated. Ownership always remains anchored in that register, whether maintained by a custodian, a CSD, or directly on-chain.

This structure preserves liquidity, because assets are immobilised only until settlement finality is achieved, before being released again. Each Novat is unique, single-use, and extinguished at settlement, so there is no risk of duplication or legal ambiguity.

A Programmable Settlement Protocol

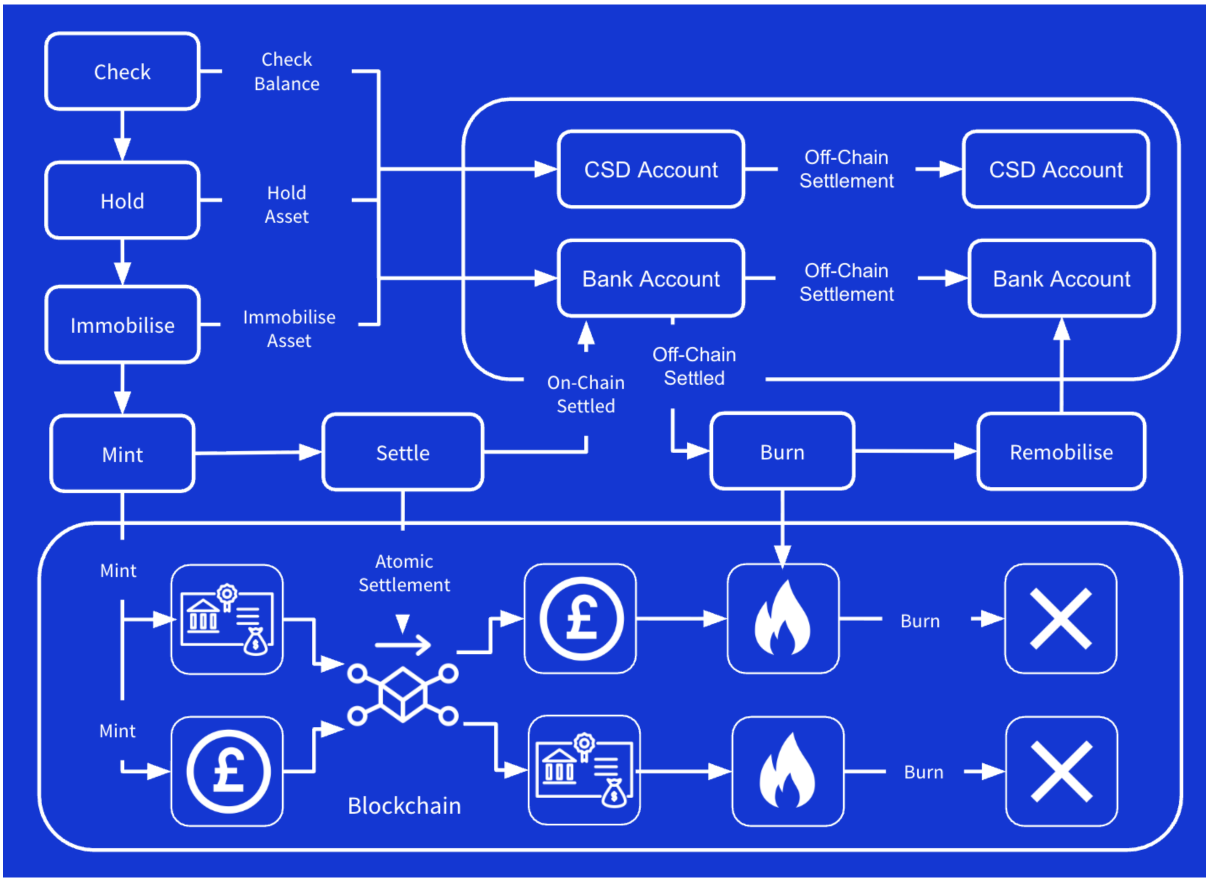
Novats operate within a programmable settlement protocol that provides a standardised framework through which obligations are represented, synchronised, and discharged. The protocol is *programmable* because the relevant contractual logic is embedded directly within the settlement instruction. It is also a *settlement protocol* in that it defines the rules and processes through which obligations are discharged, synchronised, and recorded across interconnected systems.

How do Novats work?

Each Novat follows a short, tightly controlled lifecycle:

- **Mint**: When the relevant security is immobilised at a custodian, a Novat is created with a reference to the underlying event.
- **Settle:** The Novat can be transferred once, evidencing novation of the obligation.
- **Burn**: Once the custodian or CSD updates its ledger, the Novat is extinguished, preventing circulation or reuse.

Figure 1: The Novat Protocol



This "mint-settle-burn" lifecycle ensures that a Novat exists only for the duration of the settlement workflow and remains inseparably linked to the underlying entitlement.

Design Principles

The Novat Protocol has been specifically designed to meet these tests, anchored in four complimentary design pillars. By combining these dimensions, the Novat Protocol restores the speed and certainty once associated with bearer instruments while preserving the safeguards of dematerialisation. It gives institutions a pathway to adopt tokenised settlement without fragmenting collateral pools or disrupting custodial frameworks, and establishes a foundation that can evolve seamlessly as native digital issuance grows.

- **Operational**: The Novat Protocol is designed to interoperate with existing custodial and CSD infrastructure. Immobilisation of assets takes place within the established custodial chain, and Novat instructions synchronise with those records to ensure that legal title and beneficial ownership remain authoritative. In practice, this means a Novat transfer can be recognised simultaneously on-chain and in the books of the relevant custodian or CSD, creating a bridge between digital workflows and the systems where ownership is ultimately recorded.[2]
- **Programmability**: The Novat Protocol embeds contractual logic directly into settlement instructions through the CDM. Programmability ensures that each Novat achieves faster settlement of assets, and moves them in strict accordance with the underlying contractual obligations.
- **Technological**: Novats are implemented through a UTXO-based blockchain architecture, combining atomic settlement with privacy, decentralisation, and scalability, solving the problem of speed, capacity and provenance in large-scale settlement systems.
- **Legal**: While the ultimate test of enforceability lies with courts and regulators, Novats are structured to align with established frameworks of contract and property law, as well as financial collateral regimes.

5. *Operational Structure*

Integration with Traditional Financial Market Infrastructure

In capital markets, CSDs and custodians remain the authoritative record-keepers of securities ownership. Any operational model for tokenised settlement must therefore integrate with these infrastructures. The Novat Protocol is premised on the principle that the blockchain does not supplant these authoritative records. Rather, it is designed to operate as a synchronisation mechanism, whereby programmable, contractual obligations are translated into settlement instructions, and the resulting on-chain transfers are given effect through corresponding updates to off-chain registers of title.

In a traditional multi-custodial bond settlement, each side of a trade instructs its custodian, who in turn sends matching settlement messages to the CSD. The CSD validates, nets, and executes the transfer. This process is robust, but it introduces friction. Messages must be matched across systems, instructions can break, and finality depends on end-of-day reconciliation across custodians, CSDs, and client books. When fails occur, they trigger chains of manual intervention, securities borrowing, or buy-ins. The complexity increases with every custodian added to the chain.

The Novat Protocol simplifies the settlement process by introducing a synchronised workflow that immobilises the asset at source, mints a temporary tokenised representation of the asset, and burns that token once the CSD (or other authoritative record) has updated its ledger. Immobilisation requests, book-entry updates, and confirmations flow through the same messaging standards that custodians and CSDs already rely on: SWIFT or ISO 20022 messages. In this way, the Novat Protocol avoids creating

[2] The same approach can extend across different blockchain networks as native issuance grows, ensuring that tokenised settlement is not siloed but remains anchored in the operational and legal processes that already govern global markets.

a parallel infrastructure. It fits into existing workflows, acting as a cryptographically verifiable coordination layer rather than a new or competing record of title.

Tokenised Settlement

A key challenge in settlement lies in the interval between immobilisation and final credit. When a security is immobilised at one custodian but not yet recorded at another, ownership can appear suspended between two ledgers. Traditionally, this gap has been managed through reconciliation and end-of-day processing, the very practices that underpin today's T+2 cycle.

The Novat Protocol eliminates this uncertainty by creating a unique, single-use digital token that represents the asset during its movement across custodial chains. Once the receiving custodian records title, the token is extinguished. It is not an asset in its own right but a verifiable bridge that preserves continuity of ownership throughout the settlement process.

In essence, the Novat functions like a bill of exchange; a temporary, transferable representation of value that bridges the gap between immobilisation and credit. Unlike its paper predecessor, it is digital, cryptographically verifiable, and immune to duplication or loss.[3]

Integration with Decentralised Financial Market Infrastructure

As markets evolve toward natively digital issuance and decentralised finance, the Novat Protocol also enables settlement instructions to be transmitted directly to the blockchain, operating with the same certainty and control as centralised financial market infrastructures.

One of the core challenges of blockchain adoption is fragmentation. The Novat Protocol resolves this by mirroring the discipline of existing FMI processes while extending them to decentralised networks. It allows assets to move across chains and custodial systems within a common, programmable framework for settlement, preserving interoperability, legal certainty, and operational standards as markets transition to a fully digital market infrastructure.

6. *Programmability*

What is Programmability?

Financial transactions are, at their core, expressions of contractual logic. They define rights and obligations to transfer value, assume risk, or perform specific actions, as set out in legal frameworks such as the ISDA Master Agreement. These frameworks govern how cash flows are calculated, how collateral is managed, and how risk is allocated between the parties.

While such standards are crucial to these processes, they are currently implemented using fragmented systems and require extensive manual reconciliation, making effective automation of these obligations virtually impossible.

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[3] Its legal characterisation, as with the bill of exchange, depends on clear rules of attachment to the underlying obligation, addressed further in the Legal Structure section below.

Programmability means encoding those same rights and obligations into machine-readable logic that systems can interpret and execute deterministically.

Programmability in the Novat Protocol

The Novat Protocol achieves programmability by aligning legal, operational, and technical layers through direct integration with the FINOS Common Domain Model (CDM). The CDM provides a single, open-source representation of financial products and lifecycle events, defining not just the data structures for a trade, but also the permissible state transitions that occur throughout its lifecycle.

Within Novat, every settlement obligation originates from a CDM-defined event. This event captures the underlying economic intent (for example, a cash flow calculation or margin call) and expresses it in a standardised, structured form. From this canonical source, Novat derives the full execution flow:

- A Canonical Settlement Instruction (CSI) consolidates the CDM event with operational data such as Standard Settlement Instructions (SSIs), relevant legal agreements, netting arrangements and settlement parameters;
- The CSI serves as the single reference point from which settlement messages are generated; and
- The same CSI triggers an equivalent on-chain representation in the form of a transient Novat token that mirrors the settlement lifecycle.

This architecture ensures that every operational step - from contract formation to settlement finality - is traceable to the same CDM-defined obligation. Each message, signature, and token action is derived from a single canonical source of truth.

The Role of the CDM

The CDM provides the formal grammar that enables programmability. It defines the structure and semantics of contractual data and processes in a way that is both human-readable and machine-executable. By using structured CDM data objects to represent trades, events and processes, the Novat Protocol ensures that its internal data, external instructions, and on-chain transactions are all consistent with a common industry standard.

This standardisation eliminates ambiguity between systems and participants. When a settlement instruction is generated, the system knows what is being transferred, and why, linking each action to the underlying contract, valuation, and event that produced it. The same logic that governs the obligation in law is therefore embedded within the system that performs it.

Smart Contract Model

The Novat Protocol achieves programmability through Tokenovate's CDM-based automation engine and the Smart Contract Model, developed in collaboration with ISDA and FINOS[4]. Together, they transform the CDM from a declarative data standard into an executable framework capable of managing complex financial workflows with precision and transparency.

[4] https://www.isda.org/2025/10/21/isda-and-tokenovate-launch-taskforce-to-develop-smart-contract-framework-within-the-cdm/

The CDM-based automation engine forms the core of Tokenovate's AUTOMATE module. It ingests standardised CDM trade data and orchestrates lifecycle events through a deterministic state machine. Each event, whether a payment, reset, or margin call, is triggered by defined CDM conditions and executed in accordance with the trade's governing logic.

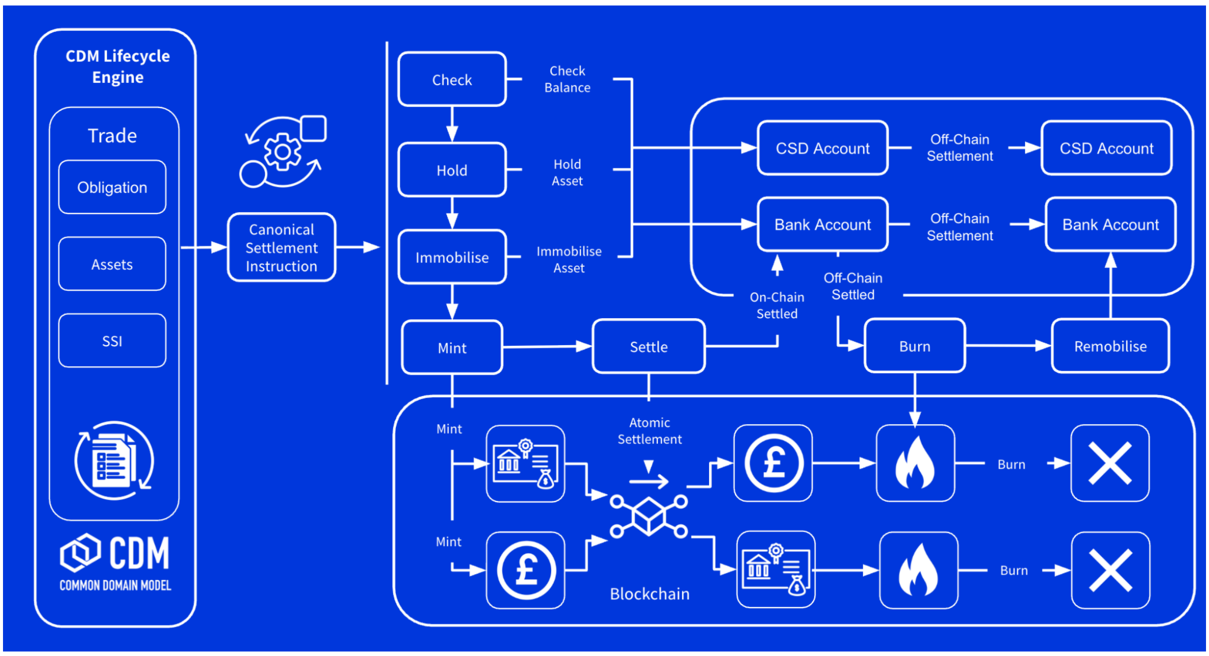
The Smart Contract Model extends this capability by deconstructing contractual processes into discrete, reusable Smart Contract Steps. Each step represents a defined legal or operational rule (for example, calculating a floating rate under the terms of the 2021 ISDA Interest Rate Definitions) or validating eligibility under a CSA) and records its inputs, outputs, and intermediate states within a persistent Smart Contract Memory. This design provides full lineage from the contractual term to its computational execution, allowing every result to be traced, audited, and reproduced.

By combining CDM-based representation with stateful execution, Tokenovate's AUTOMATE module establishes a bridge between legal standards and executable logic. The same constructs that describe a trade in CDM form can now be invoked as active functions within the automation engine, enabling consistent interpretation, automatic performance, and verifiable outcomes across systems.

A Unified Execution Framework

By combining CDM-based data models with programmable logic, the Novat Protocol converts post-trade processes into a deterministic workflow. Each step - validation, enrichment, instruction generation, and confirmation - is executed automatically against formalised, industry-standard business rules.

Figure 2: Programmable Settlement Protocol



When transmitted through existing market infrastructure (for example, as an ISO 20022 message), the instruction appears entirely standard to custodians, preserving interoperability with current settlement systems. At the same time, a parallel representation is recorded on-chain, creating an immutable, auditable record of the same event. In this way, Novats bridge traditional and decentralised infrastructures, embedding programmability without disrupting established market practice.

7. Technological Architecture

The design of a programmable, tokenised settlement protocol demands a blockchain architecture that mirrors the core principles of financial market infrastructure: neutrality, auditability, scalability, and legal certainty.[5] Among existing blockchain models, the Unspent Transaction Output (UTXO) framework provides the closest functional analogue to how financial obligations are created, performed, and extinguished in law.[6]

In a UTXO system, each output represents a discrete, self-contained unit of value with its own immutable provenance. Once spent, it is destroyed and replaced by a new output, a mechanism that naturally reflects the lifecycle of a contractual obligation that is performed and discharged. This deterministic structure ensures clear auditability, parallel processing at scale, and a provable link between each on-chain event and its underlying contractual record.

In practice, the choice of a UTXO-based architecture is not simply a technical preference but a design necessity. A settlement protocol intended for institutional use must operate within a predictable, legally robust framework, one that guarantees neutrality, auditability, privacy, and scale without sacrificing openness or interoperability. These are the same qualities that underpin trusted financial market infrastructure.

The following design principles therefore set out how these requirements are expressed and implemented within the Novat architecture.

Decentralisation and Governance

Settlement infrastructure must be neutral. Financial markets cannot tolerate concentration of control in a handful of actors. Proof-of-Stake systems are particularly vulnerable to this risk: large stakeholders compound their holdings, entrenching incumbency and skewing governance in their favour. This creates the danger of cartelisation, fee manipulation, or governance capture.

UTXO-based Proof-of-Work chains address this differently. Validation power is tied to computational effort rather than wealth accumulation. Any participant with sufficient resources can validate transactions, and the incentive is to process as many as possible, as efficiently as possible. Neutrality is further reinforced by the open, permissionless nature of these networks: no entity can be excluded, and governance rules are transparent and enforced algorithmically.

For financial markets, this provides confidence that the settlement layer cannot be monopolised by incumbents or gatekept by a consortium, and that operational neutrality is preserved over time.

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[5] These requirements reflect the principles set out by the European Commission in its paper: Enhancing Financial Services with Permissionless Blockchain (2024). See: https://op.europa.eu/en/publication-detail/-/publication/cab54e8e-ad3b-11ef-acb1-01aa75ed71a1/language-en

[6] See: McGonagle, C. & Kirilenko, A., "Digital Assets: Schrödinger's Property?", Tokenovate (Feb 2025) https://www.tokenovate.com/insights/blog/digital-assets-schrodingers-property/. This article explores how digital assets occupy an ambiguous position between traditional legal categories of property — neither wholly "things in possession" nor "things in action" — and argues that blockchain architectures such as the UTXO model can resolve this indeterminacy by creating discrete, traceable units of ownership. This conceptual foundation underpins the requirement for legal enforceability and auditable provenance in tokenised settlement systems.

Privacy

Settlement workflows involve highly sensitive information. While transparency is essential for auditability, confidentiality is equally critical for market integrity and regulatory compliance.

The Novat Protocol is designed with privacy-by-design principles. Each Novat transfer exists as a discrete UTXO, ensuring settlement flows can be isolated without exposing unrelated activity. Novats are also minted from “clean” outputs (i.e. coinbase transactions with no prior history). This ensures that each Novat begins life without inherited provenance, avoiding the risk of unintended data leakage across transactions. Privacy is further reinforced through the use of derived keys[7], selective disclosure via Merkle proofs[8], and optional hardware security modules (HSMs)[9].

Provenance

Every Novat must map exactly to the lifecycle of the underlying contractual entitlement.

The UTXO model is well suited to this requirement. Each Novat exists as a discrete output with its own immutable history from creation to burn. Unlike account-based chains, which pool balances and obscure transaction lineage, UTXOs provide transparent, auditable provenance. This eliminates co-mingling risk, and creates clear evidential trails.

For financial markets, this one-to-one mapping is critical. It enables courts, regulators, and participants to match each tokenised settlement event directly to its contractual obligation, reducing ambiguity and reinforcing enforceability. Just as importantly, it removes one of the main causes of settlement breaks: the lack of a single, auditable record linking contractual events to asset movements.

Scalability

Capital markets generate millions of settlement events each day. These are not just simple transfers of assets but also include margin calls, substitutions, recalls, and returns, each involving both a transfer and multiple contractual computations.

The Novat Protocol addresses this by separating computation from settlement. Contractual logic is executed off-chain in the CDM layer (see *Programmability in the Novat Protocol*), while the blockchain serves solely as a tamper-evident settlement rail. This separation preserves scalability and predictability, avoiding the prohibitive costs of embedding complex calculations into distributed consensus mechanisms.

Settlement and Finality

Finality in financial markets is multidimensional - technological, operational, economic, and legal. For the Novat, settlement must be auditable, irreversible in practice, and recognised as legally conclusive.

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[7] New cryptographic keys generated from a master key, allowing transactions to remain unlinkable while still traceable to an authorised participant when needed.

[8] A cryptographic technique that lets one party prove that a specific piece of data is included in a larger dataset without revealing the entire dataset.

[9] Dedicated devices that safeguard cryptographic keys and perform sensitive operations in a tamper-resistant environment

The UTXO model supports this by treating each Novat as a discrete output with a self-contained history. Deterministic validation, double-spend prevention, and tamper-evident audit trails ensure that once a transaction is included, it cannot be altered without detection. Parallel processing of outputs avoids congestion bottlenecks and ensures predictable inclusion, even at scale.

Legally, finality is achieved at the contractual layer. The on-chain Novat is binding between participants during transit, while the custodian or CSD ledger remains the ultimate record of title. Once that register updates, the Novat is extinguished, providing dual assurance of operational and legal finality. This alignment ensures that settlement is both technologically irreversible and supports enforceability under law (see *Legal Structure*).

Bitcoin SV

While Novats could, in principle, be deployed on any UTXO-based blockchain, a review of available protocols against the requirements outlined above indicates that Bitcoin Satoshi Vision (BSV) provides the strongest foundation. BSV is a public, permissionless, Proof-of-Work blockchain built on the UTXO model.

Unlike other protocols that have introduced fixed block sizes or migrated to Proof-of-Stake governance, BSV retains unbounded scalability, simple and verifiable transaction scripts, and miner incentives that favour efficient processing of high-volume, low-value transactions. These characteristics make it particularly well suited to operate as a neutral, high-throughput settlement layer for financial market infrastructure.

8. *Legal Structure*

Without legal enforceability, speed and technology alone cannot deliver the certainty markets require. Any credible solution to settlement inefficiency must therefore rest on clear legal foundations of contract and property law.[10]

Establishing the Legal Nature of Novats

The UK Jurisdiction Taskforce (UKJT) has confirmed that digital assets are capable of being treated as property under English law. The Law Commission has gone further, recommending statutory reform to recognise digital assets as a distinct category of personal property, so-called "data objects."[11]

This emerging framework provides a solid foundation for tokenised settlement. However, given the wide variety of tokenisation structures, clarity of legal design remains essential.[12] Industry guidance reinforces this point. ISDA, for example, distinguishes between three models of tokenisation:

- **Bearer**, which treat the token itself as the property right

[10] It is expected that the Novat Protocol will initially be governed under English law, reflecting its status as the most widely used legal system in international capital markets. English law provides robust, well-developed frameworks for contract, property, and financial collateral, and is already the basis on which most ISDA agreements and collateral opinions are governed.

[11] The UK Government has accepted this recommendation, and the forthcoming Property (Digital Assets etc.) Bill is expected to enshrine it in legislation, providing statutory certainty that digital assets can attract proprietary rights.

[12] While Novats are initially designed for off-chain dematerialised securities, the same legal principles could extend to natively digital instruments where the authoritative record is itself a blockchain ledger or smart contract. In that context, the *Novat* would operate directly on the primary register rather than referencing an external custodial system.

- **Registered**, which treat the token as an evidential entry in a register
- **Claims**, which link the token to some contractual right or claim.

The Novat is deliberately aligned with the latter two approaches. It exists solely to evidence and coordinate the transfer of an underlying dematerialised security, and is extinguished once that transfer is confirmed recorded in the relevant register.[13]

Stapling Mechanisms and Enforceability

A central concept in the treatment of tokenised assets is "stapling."[14] Stapling refers to the legal mechanism by which a digital token is bound to rights in another asset or obligation. Rather than existing as a parallel or free-standing asset, the token's lifecycle is synchronised with the underlying entitlement, so that its transfer, use, or extinguishment has direct legal effect on the off-chain right it represents.[15]

The legal effect of a Novat therefore depends on its stapling to the underlying security. The primary legal mechanism underpinning the stapling of off-chain assets to a Novat is a multi-lateral contractual framework among all participants on the Tokenovate platform. This stapling is achieved by embedding in the multi-lateral framework provisions that:

- Emulate negotiability, by providing that any person in control[16] of a Novat is contractually recognised as the holder of the underlying entitlement;
- Ensure that payment or performance by the issuer or custodian to the entity in control of the Novat is a full and final discharge of their obligations; and
- Synchronise the lifecycle of the Novat with the corresponding immobilisation, transfer, and release of the underlying security.

Lifecycle, Extinguishment, and Negotiability

The Novat is defined by a short, tightly controlled lifecycle. Each token is minted only when the underlying asset is immobilised, evidencing the contractual obligation to deliver (see *Programmability*). It is transferred once to novate that obligation from one party to another. It is then extinguished when the custodian or CSD updates its record of title, with the burn confirming that no residual claim exists in the token itself. The only entitlement is the updated record of title.

This lifecycle has two important consequences. First, it confirms the temporary, evidential function of the Novat. Second, it avoids the uncertainties associated with negotiability[17] because each token is tied

[13] For natively digital instruments, this evidential role may be adapted: the Novat can function as a direct settlement instruction within the on-chain register, embedding legal enforceability without the need for stapling to an off-chain entitlement.
[14] For off-chain securities, stapling is essential to bind the *Novat* to the custodial record of title. For natively digital instruments, the *Novat* could operate directly on the authoritative on-chain record, embedding the same synchronisation logic without the need for an external stapling mechanism.
[15] See: UK Jurisdiction Taskforce, Legal Statement on the Issuance and Transfer of Digital Securities under English Private Law (February 2023).
[16] The concept of "control" has emerged as the functional equivalent of possession for digital assets, particularly in UCC Article 12 (U.S.) and in recent UK Law Commission reports. It refers to the ability of a person to exercise exclusive power over a digital asset (for example, by using the private key to transfer or prevent its transfer) and to exclude others from doing so.
[17] Negotiability refers to the legal quality that allows certain instruments (such as bills of exchange, cheques, and bearer securities) to be transferred so that a good-faith purchaser for value acquires better title than the transferor. It is this doctrine that gave such instruments their "money-like" quality, allowing them to circulate freely in commerce. The doctrine of good-faith purchase is thus central to negotiability, but its extension to digital tokens remains unsettled.

to a defined settlement obligation and permissioned under the rulebook, with full lineage back to the originating contract. A Novat could, in principle, be passed on before synchronisation with the custodian or CSD is complete, but any such transfer conveys no better title than the transferor held. Legal finality arises only when the authoritative register is updated. At that point the Novat is extinguished and replaced with a new state, containing defects within a short, auditable chain rather than allowing them to propagate through circulation.[18]

Synchronisation and Finality

Synchronisation between on-chain and off-chain records is a key challenge in tokenised settlement.[19] The Novat approaches settlement finality holistically, recognising the distinction between technological, operational, economic, and legal dimensions.

The Novat Protocol is designed to deliver settlement finality in both its legal and operational dimensions. Under English law (and comparable systems), a transfer is only final if two conditions are met: (i) legal certainty about the effect of the transfer (the contract stipulates that when X occurs, Y is transferred); and (ii) factual certainty that the event has occurred.

The Novat Protocol is capable of achieving both: The contractual framework defines the legal consequences, while the blockchain provides immutable, tamper-evident proof of execution.[20]

Insolvency and Collateral Regimes

The Novat is designed to operate consistently with the Financial Collateral Arrangements (No. 2) Regulations 2003 (“FCARs”). Because it is not a free-standing asset but a tokenised settlement mechanism stapled to an underlying dematerialised security, its legal characterisation follows that of the underlying instrument.[21] On this basis, the posting, transfer, or return of collateral through a Novat could be viewed as the creation or realisation of a financial collateral arrangement within the meaning of the FCARs, preserving recognised protections such as title transfer, appropriation, and exemption from certain insolvency stays. The stapled structure is intended to mitigate the re-characterisation risks sometimes associated with digital tokens by ensuring that a Novat has no independent existence or market value apart from the entitlement it evidences.[22]

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[18] See Law Commission of England and Wales, Digital Assets: Final Report which discusses two approaches to the legal characterisation of on-chain transfers: the “extinction/creation” analysis, under which the transferred asset is extinguished and a new one created upon transfer, and the “persistent thing” analysis, which treats the same asset as continuing through state changes. While the Commission did not adopt either view as definitive, the technical structure of UTXO-based systems provides strong arguments in favour of the extinction/creation analysis.

[19] Under English law, ownership of shares is ultimately constituted by the company’s register of members, which is conclusive evidence of title regardless of any contractual framework: Companies Act 2006, s.112. Even where holdings are intermediated through CREST or custodians, the register remains the definitive source of ownership. By contrast, contractual securities such as bonds are governed by their trust deeds or terms and conditions, which can designate which record is binding between participants until the custodian or CSD updates its ledger. This structural distinction has been highlighted by the UK Jurisdiction Taskforce, Legal Statement on the Issuance and Transfer of Digital Securities under English Private Law (2023), which notes that contractual securities,as a result, are comparatively more straightforward to tokenise than equities.

[20]Settlement finality is recognised as a cornerstone of financial market infrastructure under the EU Settlement Finality Directive (Directive 98/26/EC), its UK implementation (Financial Markets and Insolvency (Settlement Finality) Regulations 1999, SI 1999/2979), and comparable regimes internationally. These frameworks give statutory protection to transfer orders entered into a designated system, making them irrevocable and enforceable even in insolvency. A *Novat*-based system may therefore require designation under the relevant regulations in order to achieve statutory settlement finality. Importantly, these rules presuppose deterministic outcomes and do not cater for probabilistic settlement models used in blockchains.

[21]See ISDA, Tokenized Collateral Guidance Note (May 2024) which emphasises whichever model of tokenisation is adopted, enforceability opinions will be required to confirm that transfer of a token equates to transfer of the underlying rights, and that collateral arrangements continue to benefit from statutory protections.

[22] While this interpretation aligns with the policy objectives of the FCARs and the Financial Collateral Directive (2002/47/EC), it has not yet been tested by courts or regulators in the context of tokenised settlement. Accordingly, the extent to which these protections would apply in practice remains subject to legal review.

Conflict of Laws

Where transactions cross borders, private international law (or "conflict of laws") doctrines determine which courts have jurisdiction and which national law applies. For decentralised digital assets this can be problematic, since they appear to exist "everywhere and nowhere" at once.[23]

The Novat Protocol avoids these issues by design. It is not a free-floating token in the open market. It is created and extinguished within a closed, multi-lateral contractual framework among identified participants. This contractual layer provides the necessary "connecting factor" for conflict-of-laws purposes. In practice, the framework specifies that English law governs the rights and obligations of participants. This choice of law is expressly permitted under the Rome I Regulation[24], which allows parties to designate the governing law of their contractual relationships. Accordingly, disputes are characterised and resolved as contractual matters rather than proprietary ones while the underlying security itself remains governed by the law of its register or custodian, in line with PRIMA[25] which determines that proprietary questions are governed by the law of the jurisdiction where the securities account is maintained.

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[23] Matthias Lehmann has described digital assets as "omniterritorial." M Lehmann, "Extraterritoriality in Financial Law" in A Parrish and C Ryngaert (eds), Research Handbook on Extraterritoriality in International Law (2023)

[24]Regulation (EC) No 593/2008 of the European Parliament and of the Council of 17 June 2008 on the law applicable to contractual obligations (Rome I Regulation) [2008] OJ L177/6, which allows parties to designate the governing law of their contractual relationships.

[25] PRIMA, or the Place of the Relevant Intermediary Approach, is a conflict-of-laws principle that determines the law governing proprietary aspects of indirectly held securities. Under PRIMA, issues of ownership, transfer, and priority are governed by the law of the jurisdiction where the relevant securities account is maintained, rather than the law of the issuer or the location of the underlying asset. The approach originated in international custody law and was later endorsed in instruments such as the Hague Securities Convention (2006) and the EU Settlement Finality Directive (98/26/EC), providing legal certainty for cross-border holdings.

About Tokenovate

Tokenovate is a UK-based financial technology company delivering post-trade lifecycle automation and digital settlement solutions for derivatives and securities financing. Built on the Common Domain Model (CDM), our platform connects legal contracts, data, and execution workflows to enable real-time, legally sound, and tokenised post-trade processes. By turning contracts into code, Tokenovate brings precision, automation, and scalability to post-trade operations: reducing risk, cutting costs, and unlocking growth across capital markets.

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