

## Claims

### Overarching System

#### Independent Claim 1 (System – Generalized Hybrid Tokenized Banking Archetype)

A hybrid tokenized banking system archetype operable across traditional (Web2) financial systems, blockchain-based (Web3) decentralized finance environments, and hybrid (Web4) object-oriented architectures, comprising an artificial intelligence agent framework, real-world asset communication protocol, automated consumption tax mechanism, interest-free tokenized banking services with self-financing facilities, structured real-world asset primary and spot market framework, fractional-reserve banking via smart-contract pledging without title transfer, normalization of traditional accounting standards for any digital asset, creative industry equity monetization, quantum-resistant encryption subsystem, object/root-level kernel or superkernel security, institutional tokenization and staking services, real-world asset Multiple Input yield-generation circular model, object-level encryption scheme, agentic commerce layer, jurisdictional tax-optimized treasury structure, International Swaps and Derivatives Association Variation Margin Credit Support Annex pledge opinion with special/sub-custody accounts and full title waiver, Basel III/IV adapted loan-to-value and credit risk baselines for tokenized real-world assets, dual-side risk mitigation with inbound dynamic adjustment layer and outbound contractual claw-back rights, self-financing facility with below-prime borrowing and retained upside plus yield share recycling, LOAN token with contractual claw-back rights, Infrastructure-as-a-Service compliance stack with sovereign identifiers and microservices, GENIUS Act leverage exemptions for higher borrowing ratios, stress testing integration into Infrastructure-as-a-Service risk

microservices, carbon accounting and environmental, social, and governance value creation integration into the yield model, and real-time settlement in real-world asset infrastructure finance for any digital asset, wherein the system maintains one-to-one par reserve backing and is interoperable with any financial system, any distributed ledger technology, any digital asset, any jurisdiction, and any accounting standard.

### **Section 1: Artificial Intelligence Agent Framework for Sustainable Development Goals or Equivalent Frameworks**

Independent Claim 2 (Method – Artificial Intelligence Agent Scoring and Tokenization)

A computer-implemented method for compliance or sustainability assessment and tokenization interoperable with any blockchain or distributed ledger technology and any digital asset, comprising training one or more artificial intelligence agents on domain methodologies and real-time data feeds from any source; computing multi-dimensional scores forming vector/matrix representations stored on any distributed ledger technology; applying thresholds for filtering, visualization, and semantic search; and issuing compliance-aligned tokens or non-fungible tokens on any distributed ledger technology for use in any decentralized finance or regenerative finance protocol.

Independent Claim 3 (Method – Multiple-Agent Retrieval-Augmented Generation-Trained Multi-Dimensional Scoring Framework)

A computer-implemented method for sustainable development scoring comprising: deploying multiple specialized artificial intelligence agents for any sustainability or environmental, social, and governance framework; training each agent via Retrieval-Augmented Generation on authoritative sources and real-time Internet of Things or digital

monitoring, reporting, and verification data; and computing multi-dimensional scores in three orthogonal dimensions (specificity, sensitivity/intensity) represented as three-dimensional vectors, matrices, or quaternions to capture inter-dependencies and temporal dynamics.

Independent Claim 4 (System – Autonomous Multi-Agent Swarm with Kernel or Superkernel Orchestration and On-Chain Attestations)

An artificial intelligence agent framework system comprising a swarm of agents instantiated as self-contained Web Objects under the object-level encryption scheme, orchestrated by the object/root-level kernel or superkernel for real-time static/dynamic analysis, on-the-fly malicious-code rewriting, and self-healing, wherein every scoring decision generates a cryptographically signed timestamped Merkle-proof attestation logged on the timestamp-based non-repeatable distributed ledger technology for regulatory auditability.

Independent Claim 5 (Method – Autonomous Sustainable Development Goals-Triggered Token Minting, Yield Routing, and Claw-Back)

A computer-implemented method for regenerative finance comprising: autonomous evaluation of projects, real-world assets, loans, or staking positions by the artificial intelligence agent framework; minting of impact tokens for high-scoring assets; routing a portion of real-world asset Multiple Input yield-generation returns and consumption-tax proceeds to aligned projects; and triggering claw-back from collateral if real-time digital monitoring, reporting, and verification data shows under-performance.

Independent Claim 6 (System – Adaptive Retrieval-Augmented Generation-Driven Framework for Any Sustainability Standard)

A tokenized Web4 banking system comprising an artificial intelligence agent framework that

automatically ingests and adapts to any equivalent environmental, social, and governance, carbon, impact, or sustainability scoring standard via Retrieval-Augmented Generation without code changes, integrates seamlessly with real-world asset communication protocol data feeds, tokenized banking services, institutional tokenization and staking services, real-world asset multiple input yield-generation circular model, creative industry equity monetization, consumption-tax mechanism, and accounting normalization, and executes all decisions as quantum-resistant, self-healing Web Objects under the object/root-level kernel or superkernel.

## **Section 2: Real-World Asset Communication Protocol**

Independent Claim 7 (Method – Real-World Asset Communication Protocol)

A computer-implemented method for real-time data transfer from Internet-sourced feeds to any blockchain or distributed ledger technology, comprising receiving data via Internet Protocol version 6/Transmission Control Protocol or equivalent into a message-oriented middleware queue; performing real-time protocol translation and repackaging into any blockchain-native format; stripping unnecessary logic for performance; and broadcasting the transformed messages directly to any distributed ledger technology node or smart contract without requiring oracle consensus when a single authoritative source of truth is used.

Independent Claim 8 (Method – Real-World Asset Communication Protocol with Middleware Translation)

A computer-implemented method for real-time data transfer from Internet-sourced feeds to blockchain networks, comprising: receiving data via Internet Protocol version 6/Transmission Control Protocol or equivalent socket communications into a message-

oriented middleware queue; performing real-time protocol translation and repackaging into blockchain-native formats (Internet Protocol version 4/User Datagram Protocol, JavaScript Object Notation/Remote Procedure Call, or WebSockets); stripping unnecessary publish/subscribe logic for performance optimization; and broadcasting the transformed messages directly to one or more blockchain nodes or smart contracts without requiring oracle consensus when a single authoritative source of truth is used.

Independent Claim 9 (System – Single-Source Truth Real-World Asset Communication with Auditing Layer)

A system for real-world asset data communication comprising a middleware messaging queue that receives authenticated single-source truth feeds over secure channels (virtual private network/Secure Sockets Layer or equivalent), translates the feeds into blockchain-native protocols, applies a built-in financial auditing and regulatory compliance layer that cryptographically signs each message with a timestamped Merkle proof, and exposes a standardized developer client interface for direct on-chain consumption, wherein the queue maintains persistent storage for guaranteed delivery and supports dynamic message transformation according to recipient-specific business rules.

Independent Claim 10 (Method – Quantum-Resistant and Hybrid Security for Real-World Asset Communication Queue)

A computer-implemented method for secure real-world asset data communication comprising: encrypting messages in a middleware queue using a hybrid quantum-resistant one-time pad (non-repeating numeric sequence) layer combined with zero-knowledge proofs; enforcing Secure Site Authentication, port-level firewalling, and Certificate Authority verification; and optionally deploying the queue inside the data-source firewall to minimize

external exposure while ensuring end-to-end perfect secrecy and immutable on-chain audit trails for every broadcasted message.

Independent Claim 11 (Method – Kernel or Superkernel-Protected Real-World Asset Communication Protocol with On-the-Fly Message Sanitization)

A computer-implemented method for secure real-world asset data ingestion comprising: instantiating every inbound data feed in the real-world asset communication protocol as a unique immutable Web Object; performing real-time static and dynamic analysis by the object/root-level kernel or superkernel on the message payload and transformation logic; automatically rewriting or sanitizing any detected malicious, anomalous, or non-compliant code at the object level; and logging the modification immutably on the timestamp-based non-repeatable distributed ledger technology with zero-knowledge attestations before broadcasting the sanitized message.

Independent Claim 12 (System – Self-Healing Real-World Asset Middleware Queue Integrated with Kernel or Superkernel and Web-Object One-time pad (Non-Repeating Numeric Sequence))

A Web4 banking system comprising an object/root-level kernel or superkernel that treats every real-world asset communication protocol message as a Web Object protected by the object-level encryption scheme and the Web-Object-based one-time pad (non-repeating numeric sequence), wherein the kernel or superkernel autonomously triggers self-healing restoration from quantum-resistant one-time pad (non-repeating numeric sequence)-encrypted distributed ledger technology backups in the event of corruption and re-validates the restored message for delivery to tokenized banking smart contracts without external oracles.

Independent Claim 13 (Method – Oracle-Free Counterparty-Driven Real-World Asset Data Ingestion via Kernel or Superkernel)

A computer-implemented method for oracle-free real-world asset data ingestion comprising: direct object-to-object communication between real-world asset Web Objects and bank smart contracts, enforced by the object/root-level kernel or superkernel's root-level consensus rules and the object-level encryption scheme; application of dynamic business-rule transformations (jurisdictional filtering, Sustainable Development Goals scoring, consumption-tax pre-calculation, or risk-tier allocation) atomically within the kernel or superkernel's isolated environment; and delivery of sanitized data with sub-second latency while maintaining full quantum-resistant security and regulatory auditability.

Independent Claim 14 (System – Integrated Kernel or Superkernel–Real-World Asset Protocol Layer with Full Web4 Banking Interoperability)

A tokenized banking system comprising the object/root-level kernel or superkernel integrated with the real-world asset communication protocol such that all inbound real-world asset data is secured, sanitized, and self-healed at the Web-Object level before flowing seamlessly into tokenized banking services, fractional-reserve special custody account pledging, institutional tokenization and staking services, real-world asset Multiple Input yield-generation model execution, consumption-tax collection, and decentralized finance/regenerative finance protocols, with all operations protected by quantum-resistant one-time pad (non-repeating numeric sequence) encryption and logged for accounting compliance.

### **Section 3: Automated Consumption Tax Mechanism on Digital Asset Transfers**

#### **Independent Claim 15 (Method – Consumption Tax on Digital Assets)**

A computer-implemented method for automated consumption taxation on any digital asset or real-world asset transfer interoperable with any jurisdiction, comprising intercepting a transfer or payable function call in a token smart contract on any distributed ledger technology; calculating a tax or fee in real time as a percentage, fixed amount, or dynamic rate based on audited collateral value, jurisdictional rules, or artificial intelligence scoring; deducting the tax from the sender's balance; and routing proceeds to a designated on-chain collection wallet, off-chain service, or multi-jurisdictional treasury smart contract on any distributed ledger technology.

#### **Independent Claim 16 (Method – Consumption Tax Mechanism on Digital Asset Transfers)**

A computer-implemented method for automated consumption taxation on digital assets or real-world assets, comprising: intercepting a transfer or payable function call in a token smart contract; calculating a tax or fee in real time as a percentage of transaction value, fixed amount, or dynamic rate based on audited collateral value, jurisdictional rules, or artificial intelligence Sustainable Development Goals scoring; deducting the tax from the sender's balance; and routing the proceeds to a designated on-chain collection wallet, off-chain service, or multi-jurisdictional treasury smart contract.

#### **Independent Claim 17 (System – Consumption Tax with Blacklisting, Whitelisting, and Claw-Back)**

A system for consumption taxation comprising smart-contract logic that supports configurable blacklisting or whitelisting by Internet Protocol address, wallet address, or other identifiers; applies punitive rates to blacklisted transactions or zero rates to

whitelisted Sustainable Development Goals-aligned or institutional transactions; and includes an automated claw-back smart contract that recovers any unpaid tax directly from escrowed collateral, locked real-world asset positions, or associated loan instruments.

Independent Claim 18 (Method – Dynamic and Multi-Jurisdictional Consumption Tax Engine)

A computer-implemented method for dynamic consumption taxation comprising: adjusting tax rates in real time according to audited real-world asset collateral value, artificial intelligence Sustainable Development Goals scoring results, or jurisdictional requirements; splitting collected taxes across multiple jurisdictions or treasuries based on sender/receiver location or real-world asset provenance; and generating immutable on-chain audit trails with timestamped Merkle proofs and zero-knowledge attestations for regulatory compliance.

#### **Section 4: Interest-Free Tokenized Banking Services with Self-Financing Facilities**

Independent Claim 19 (Method – Tokenized Banking Services with Interest-Free Instruments)

A computer-implemented method for tokenized banking interoperable with any distributed ledger technology and any digital asset, comprising five core services—deposit/withdraw, no-fee payment/transfer, personal interest-free loans, commercial interest-free loans, and monetization—powered by three real-world asset-backed tokens (primary real-world asset token for deposits, primary loan token for interest-free loans with hypothecation, and primary payment token for no-fee payments), wherein commercial loans utilize a hypothecation (3-10x leverage expected) commercial loan facility that generates profits

through non-native currency repayment and reinvestment into additional token minting on any distributed ledger technology.

Independent Claim 20 (Method – Tokenized Banking Services with Interest-Free Instruments)

A computer-implemented method for tokenized banking comprising core services— deposit/withdraw, no-fee payment/transfer, personal interest-free loans, commercial interest-free loans, and monetization—powered by three real-world asset-backed tokens (primary real-world asset token for deposits with annual percentage yield, primary loan token for interest-free loans with target annual percentage yield and collateralization, and primary payment token for no-fee payments with annual percentage yield), wherein commercial loans utilize a hypothecation (3-10x leverage expected) commercial loan facility that generates profits from assets and collateral after a percent failure rate through non-native currency repayment and reinvestment into additional primary real-world asset token minting.

Independent Claim 21 (System – Calculus-Based Differential Equation Lending Engine)

A tokenized banking system comprising a calculus-based differential equation lending engine that dynamically processes any-scale collateral inputs and outputs while preserving principal, never charging interest or fees, and generating profits through automated hypothecation, reinvestment, and network-effect repayment rules.

Independent Claim 22 (Method – Network-Effect Repayment Rule and Debit Card Embodiment)

A computer-implemented method for interest-free lending comprising a network-effect repayment rule that requires repayment in non-native currencies or assets to drive token

circulation, combined with a physical debit card embodiment featuring tamper-proof construction, double-sided quick response codes, and two-step smartphone scanning plus biometric authentication that requires no additional point-of-sale hardware.

Independent Claim 23 (System – Claw-Back Enforcement and SCA Integration for Tokenized Banking)

A tokenized banking system comprising automated claw-back smart contracts that recover unpaid loan amounts from escrowed collateral or associated positions, with all collateral pledged to customer-owned Special Custody Accounts (SCAs) without title transfer to ensure bankruptcy-remote ownership and regulatory coverage.

#### **Section 5: Structured Real-World Asset Primary and Spot Market Framework**

Independent Claim 24 (Method – Structured Real-World Asset Primary/Spot Market Framework)

A computer-implemented method for primary/spot market issuance of any real-world asset interoperable with any distributed ledger technology and any accounting standard, comprising pledging collateral to a customer-owned special custody account without title transfer on any distributed ledger technology; performing audited valuation using any traditional accounting standard; minting a non-fungible token or fungible token referencing the audited valuation; and issuing the token directly into the primary/spot market at the audited value, bypassing secondary-exchange liquidity pools and fiat-matching requirements on any distributed ledger technology.

Independent Claim 25 (Method – Structured Real-World Asset Primary/Spot Market Framework)

A computer-implemented method for primary/spot market issuance of real-world assets comprising: pledging collateral to a customer-owned special custody account without title transfer; performing generally accepted accounting principles or International Financial Reporting Standards audited valuation of the collateral; minting a non-fungible token or fungible token that explicitly references the audited valuation and special custody account pledge; and issuing the token directly into the primary/spot market at the audited value, bypassing secondary-exchange liquidity pools and fiat-matching requirements.

Independent Claim 26 (System – Integration of Primary/Spot Real-World Asset Issuance with Interest-Free Banking Instruments)

A tokenized banking system comprising a structured real-world asset primary/spot market framework that issues tokens based on generally accepted accounting principles or International Financial Reporting Standards audited collateral valuation and immediately enables those tokens to be used as collateral for interest-free personal and commercial loans, deposit/withdraw services with target annual percentage yield, and no-fee payment/transfer services, all within the same bank infrastructure.

Independent Claim 27 (Method – Modular Real-World Asset Issuance with Dynamic Re-Valuation and Interest-Free Instrument Feed)

A computer-implemented method for modular real-world asset tokenization comprising: accepting any commodity, security, or verifiable asset as collateral; performing periodic generally accepted accounting principles or International Financial Reporting Standards re-valuation via an automated smart contract; dynamically adjusting token supply or pricing; and feeding the issued tokens directly into interest-free lending instruments with hypothecation, claw-back enforcement, and network-effect repayment rules.

Independent Claim 28 (System – Primary/Spot Market Framework with Quantum-Resistant Security and Regulatory Compliance)

A structured RWA primary/spot market system comprising quantum-resistant OTP/NON-REPEATING NUMBER encryption and object/root-level kernel or superkernel protection for all issuance, valuation, and transfer steps, while maintaining compliance with any applicable regulatory and tax-optimized structures.

**Section 6: Fractional-Reserve Banking via Smart-Contract Pledging without Title Transfer (including International Swaps and Derivatives Association Variation Margin Credit Support Annex Pledge Opinion with Special/Sub-Custody Accounts and Full Title Waiver)**

Independent Claim 29 (Method – Fractional-Reserve Banking via Smart-Contract Pledging)

A computer-implemented method for fractional-reserve banking interoperable with any jurisdiction and any distributed ledger technology, comprising pledging any real-world asset or digital-asset to a customer-owned special custody account via smart contract on any distributed ledger technology without title transfer; granting the bank only a special proprietary legal interest for hypothecation and lending; and automatically distributing assets across multiple special custody accounts to maintain regulatory limits and coverage on any distributed ledger technology.

Independent Claim 30 (Method – Fractional-Reserve Banking via Smart-Contract Pledging to Special Custody Accounts)

A computer-implemented method for fractional-reserve banking comprising: pledging any real-world asset or digital-asset to a customer-owned special custody account via smart contract without title transfer; granting the bank only a special proprietary legal interest for

hypothecation and lending; and automatically distributing assets across multiple special custody accounts to maintain regulatory limits and Federal Deposit Insurance Corporation-equivalent coverage.

Independent Claim 31 (System – Bankruptcy-Remote Special Custody Account Pledging with Foreign Exchange-Haircut Modifier)

A fractional-reserve banking system comprising smart-contract pledging to bankruptcy-remote special custody accounts without title transfer, combined with a foreign exchange-haircut modifier that defaults to zero percent (no customer damages) if a court ruling favors the bank or one thousand percent (ten times damages to the customer) if the ruling favors the customer, with base currency and eligible currencies defined per International Swaps and Derivatives Association Master Agreement provisions.

Independent Claim 32 (Method – Automated Multi-Special Custody Account Distribution and Claw-Back Enforcement)

A computer-implemented method for fractional-reserve banking comprising: an automated multi-special custody account distribution engine that spreads collateral in real time to maintain regulatory coverage; and a claw-back smart contract that recovers unpaid amounts directly from escrowed assets or associated special custody account positions in the event of default or unpaid consumption tax.

Independent Claim 33 (System – Quantum-Resistant Fractional-Reserve Pledging Integrated with Kernel or Superkernel)

A fractional-reserve banking system comprising quantum-resistant one-time pad (non-repeating numeric sequence) encryption and object/root-level kernel or superkernel protection for all pledging, special custody account management, hypothecation, and claw-

back operations, ensuring object-level isolation, self-healing, and compliance with any applicable regulatory and tax-optimized structures.

Independent Claim 34 (Method – International Swaps and Derivatives Association Variation Margin Credit Support Annex Pledge Structure with Bankruptcy-Remote Special/Sub-Custody Accounts)

A computer-implemented method for institutional tokenization and staking of illiquid real-world assets comprising enrolling assets via a Custody and Pledging Agreement executed under the 2016 International Swaps and Derivatives Association Variation Margin Credit Support Annex (New York law) without title transfer; maintaining assets in customer-owned bankruptcy-remote special or sub-custody accounts with Federal Deposit Insurance Corporation-equivalent spreading ( $\leq$  two hundred fifty thousand dollars per account); and providing full waiver of title transfer even in insolvency while delivering supplemental annual percentage yield and looping via proxy-tokenized hypothecation.

Independent Claim 35 (System – Bankruptcy-Remote Sub-Custody Accounts with Federal Deposit Insurance Corporation-Equivalent Spreading)

A Web4 banking system comprising bankruptcy-remote special and sub-custody accounts that automatically fragment pledged tokenized real-world assets across multiple isolated accounts ( $\leq$  two hundred fifty thousand dollars equivalent per account) to achieve Federal Deposit Insurance Corporation-like protection, wherein each account is a sovereign-identifier Web Object protected by object/root-level kernel or superkernel and Web4 Security Scheme object-level encryption, with full title remaining with the pledgor at all times.

## **Section 7: Normalization of Traditional Accounting Standards for Any Digital Asset**

Independent Claim 36 (Method – Normalization of Traditional Accounting Standards for Any Digital Asset)

A computer-implemented method for accounting normalization interoperable with any traditional accounting standard and any distributed ledger technology, comprising creating side-by-side mappings of any accounting standard's balance-sheet and income-statement captions for any digital asset (cryptocurrencies, tokenized securities, real-world assets); and automatically generating standardized journal entries in real time from on-chain transactions on any distributed ledger technology using a hybrid balance-sheet engine that treats real-world asset deposits as both customer liabilities and bank assets under normalized rules.

Independent Claim 37 (Method – Normalization of Traditional Accounting Standards for Any Digital Asset)

A computer-implemented method for accounting normalization comprising: creating side-by-side mappings of generally accepted accounting principles and International Financial Reporting Standards balance-sheet and income-statement captions for cryptocurrencies, tokenized securities, and any real-world assets; and automatically generating standardized journal entries in real time from on-chain transactions using a hybrid balance-sheet engine that treats real-world asset deposits as both customer liabilities and bank assets under normalized rules.

Independent Claim 38 (System – Real-Time Generally Accepted Accounting Principles/International Financial Reporting Standards Translation Application Programming Interface with Hybrid Engine)

A normalization system comprising a real-time translation application programming interface that converts on-chain Web3 digital-asset transactions into generally accepted accounting principles or International Financial Reporting Standards journal entries, combined with a hybrid balance-sheet engine that simultaneously records real-world asset deposits as customer liabilities and bank assets, with all entries cryptographically signed and logged on a timestamp-based distributed ledger technology for auditability.

Independent Claim 39 (Method – Dynamic Standard Selection and Yield Component Recognition)

A computer-implemented method for accounting normalization comprising: dynamically selecting the applicable standard (generally accepted accounting principles or International Financial Reporting Standards) based on jurisdictional settings or user election; and automatically recognizing yield components from the real-world asset Multiple Input yield-generation circular model (tax efficiencies, Sustainable Development Goals value capture, compounding, etc.) in the appropriate balance-sheet and income-statement captions.

Independent Claim 40 (System – Real-Time Generally Accepted Accounting Principles/International Financial Reporting Standards Translation Application Programming Interface with Hybrid Engine)

A normalization system comprising a real-time translation application programming interface that converts on-chain Web3 digital-asset transactions into generally accepted accounting principles or International Financial Reporting Standards journal entries, combined with a hybrid balance-sheet engine that simultaneously records real-world asset deposits as customer liabilities and bank assets, with all entries cryptographically signed and logged on a timestamp-based distributed ledger technology for auditability.

## **Section 8: Creative Industry Equity Monetization**

Independent Claim 41 (Method – Creative Industry Equity Monetization)

A computer-implemented method for creative industry equity monetization interoperable with any distributed ledger technology and any creative work, comprising tokenizing any creative work as a fungible or limited-print token on any distributed ledger technology; dynamically adjusting the token price in real time based on verified usage metrics received via any data feed; embedding a pricing floor that increases over time; and allowing the creator to retain full licensing and royalty rights while selling fractional or full ownership.

Independent Claim 42 (Method – Creative Industry Equity Monetization with Dynamic Usage-Metric Pricing)

A computer-implemented method for creative industry equity monetization comprising: tokenizing any creative work (song, album, collection, art, literature, patent, or intellectual property) as a fungible or limited-print token; dynamically adjusting the token price in real time based on verified usage metrics (streams, views, listens, downloads, or plays) received via the real-world asset communication protocol from external distribution services; and embedding a pricing floor that increases over time to provide intrinsic value growth.

Independent Claim 43 (System – Creator-Retained Licensing with Royalty-Splitting and Interest-Free Instrument Integration)

A creative equity monetization system comprising smart-contract logic that allows the original creator or rights holder to retain full licensing and royalty rights while selling fractional or full ownership of tokenized creative works, with automated royalty-splitting that distributes a configurable percentage of usage-derived revenue or secondary-market

sales directly to the creator's wallet, and immediate integration of the issued tokens as assets for interest-free personal and commercial loans within the tokenized banking services.

Independent Claim 44 (Method – Limited-Print Tokenomics with Agentic Commerce and Predictive Analytics)

A computer-implemented method for creative equity tokenization comprising issuance of a limited token print per artwork or collection, combined with agentic commerce artificial intelligence agents that autonomously monitor usage metrics, predict future royalty streams, alert creators to optimal monetization opportunities, and execute fractional ownership sales or royalty-splitting adjustments when authorized.

Independent Claim 45 (System – Creative Equity Monetization with Consumption Tax, Yield Loop, and Quantum-Resistant Security)

A creative industry equity monetization system comprising the consumption tax mechanism applied to every secondary-market transfer or monetization event, automatic reinvestment of a portion of collected taxes into the real-world asset Multiple Input yield-generation circular model, and end-to-end protection by quantum-resistant one-time pad (non-repeating numeric sequence) encryption and the object/root-level kernel or superkernel, wherein each creative equity token is instantiated as a unique immutable web object under the object-level encryption scheme.

## **Section 9: Quantum-Resistant Encryption Subsystem**

Independent Claim 46 (Method – Quantum-Resistant Encryption Subsystem)

A computer-implemented method for quantum-resistant encryption interoperable with any

distributed ledger technology, comprising generating a non-repeating numeric sequence either from Internet of Things-derived physical measurements or directly from the unique identifiers and instantiation timestamps of Web Objects recorded on the timestamp-based non-repeatable distributed ledger technology; using the next unused segment as a one-time pad (non-repeating numeric sequence) key; encrypting plaintext via modular addition or bitwise exclusive-or; and writing ciphertext as part of a new Web Object on any distributed ledger technology, thereby generating the next key segment automatically without external entropy when using the Web-Object embodiment.

Independent Claim 47 (Method – Quantum-Resistant Encryption Using Unique Web Objects as Non-Repeating Sequence)

A computer-implemented method for quantum-resistant encryption in a Web4 network comprising: instantiating every transaction, token record, or data element as a unique immutable Web Object possessing a globally unique object identifier and a precise timestamp of instantiation; deriving a non-repeating numeric sequence directly from the ordered list of Web Object identifiers and timestamps recorded on the timestamp-based non-repeatable distributed ledger technology; using the next unused Web Object in the sequence as a one-time pad (non-repeating numeric sequence) segment; encrypting plaintext via modular addition or bitwise exclusive-or with the selected segment; and appending the resulting ciphertext as part of a new Web Object to the distributed ledger technology, thereby generating the next key segment automatically without requiring external entropy sources.

Independent Claim 48 (System – Self-Contained Web-Object One-time pad (non-repeating numeric sequence) Encryption Integrated with Kernel or Superkernel and Distributed Ledger

Technology)

A quantum-resistant encryption system comprising an object/root-level kernel or superkernel that enforces Web-Object-based one-time pad (non-repeating numeric sequence) encryption, wherein each Web Object's unique identifier and instantiation timestamp form a guaranteed non-repeating sequence on the timestamp-based non-repeatable distributed ledger technology; the kernel or superkernel selects the next unused Web Object as the one-time pad (non-repeating numeric sequence) segment, performs encryption, marks the segment as consumed, and ensures immediate logical destruction from the active key pool while preserving the immutable distributed ledger technology record for auditability.

Independent Claim 49 (Method – Hybrid Internet of Things and Web-Object One-time pad (non-repeating numeric sequence) Embodiments with Seamless Switching)

A computer-implemented method for quantum-resistant encryption comprising both an Internet of Things-derived non-repeating random sequence embodiment and a Web-Object-based non-repeating sequence embodiment, with seamless switching between the two based on deployment requirements (external entropy availability or fully on-chain self-containment), while maintaining information-theoretic perfect secrecy and integration with trusted execution environment execution and the object/root-level kernel or superkernel.

Independent Claim 50 (System – Bank with Object/Root-Level Kernel or Superkernel)

A Web4 banking system interoperable with any distributed ledger technology comprising an object/root-level kernel or superkernel operating at the object/root level that autonomously performs real-time analysis of bytecode or smart-contract logic on any distributed ledger technology, rewrites or sanitizes any detected malicious code on-the-fly, and triggers self-

healing restoration from quantum-resistant backups, with all actions logged immutably on any distributed ledger technology.

## **Section 10: Institutional Tokenization and Staking Services (including Infrastructure-as-a-Service Compliance Stack with Sovereign Identifiers and Microservices)**

Independent Claim 51 (Method – Institutional Tokenization and Staking Services)

A computer-implemented method for institutional tokenization and staking interoperable with any distributed ledger technology and any jurisdiction, comprising enrolling any illiquid real-world asset via a Custody and Pledging Agreement on any distributed ledger technology without title transfer; maintaining assets in customer-owned special custody accounts; providing multi-party computation-secured custody; delivering supplemental annual percentage yield through institutional staking; and enabling looping via proxy-tokenized hypothecation while maintaining compliance with any applicable regulatory framework.

Independent Claim 52 (Method – Institutional Tokenization and Staking Services with Bankruptcy-Remote Pledging)

A computer-implemented method for institutional tokenization and staking of illiquid real-world assets comprising: enrolling assets via a Custody and Pledging Agreement executed through smart contracts without title transfer (bankruptcy-remote); maintaining assets in customer-owned special custody accounts; providing multi-party computation-secured custody; delivering supplemental annual percentage yield through institutional staking; and enabling targeting 5× looping via proxy-tokenized hypothecation while maintaining compliance with any applicable regulatory framework.

Independent Claim 53 (System – Integrated Bank and Institutional Tokenization and Staking Services with Full System Interoperability)

A tokenized banking system comprising the bank with object/root-level kernel or superkernel and institutional tokenization and staking services that together enable seamless flow of institutionally tokenized and staked real-world assets into interest-free loans, no-fee payments, deposits, real-world asset Multiple Input yield-generation yield, consumption-tax collection, and decentralized finance/regenerative finance protocols while preserving bankruptcy-remote ownership and quantum-resistant security at every layer.

Independent Claim 54 (Method – Institutional Staking Services with Supplemental Annual Percentage Yield and Reward Recycling)

A computer-implemented method for institutional staking of illiquid real-world assets comprising: enrolling real-world assets via a Custody and Pledging Agreement into customer-owned bankruptcy-remote special custody accounts without title transfer; tokenizing the assets and staking them into risk-tiered pools managed by the object/root-level kernel or superkernel; generating a supplemental annual percentage yield from proxy-tokenized hypothecation profits, real-world asset Multiple Input yield-generation rewards, and cross-real-world asset arbitrage; and automatically compounding and recycling all staking rewards back into the real-world asset Multiple Input yield-generation circular model on a per transaction, block, or time (daily) basis.

Independent Claim 55 (System – Proxy-Tokenized Hypothecation Looping Mechanism Targeting 5× Multiplier)

An institutional tokenization and staking services platform comprising a proxy-tokenized hypothecation looping mechanism wherein the object/root-level kernel or superkernel

creates a proxy token (as a unique Web Object) representing pledged collateral in a special custody account; hypothecates the proxy token targeting 5× (or configurable multiplier) within tokenized banking facilities to issue additional primary loan token or instruments; and autonomously manages the loop multiplier using artificial intelligence-driven risk optimization while preserving bankruptcy-remote ownership and enforcing the network-effect repayment rule.

Independent Claim 56 (Method – Autonomous Loop Optimization and Safeguards in Institutional Staking)

A computer-implemented method for institutional staking and looping comprising: continuous real-time monitoring by agentic commerce artificial intelligence agents of collateral volatility, Sustainable Development Goals scoring, and regulatory thresholds; autonomous adjustment of the loop multiplier by the object/root-level kernel or superkernel; and automatic partial unwinding or risk-tier reallocation if parameters are breached, with all operations protected by quantum-resistant one-time pad (non-repeating numeric sequence) encryption and logged on the timestamp-based non-repeatable distributed ledger technology.

Independent Claim 57 (System – Integrated Institutional Tokenization and Staking Services with Full Web4 Banking Interoperability)

An institutional tokenization and staking system comprising the institutional tokenization and staking services integrated with the bank such that staked real-world assets and looped proxy tokens seamlessly flow into interest-free loans, no-fee payments, deposits, consumption-tax collection, real-world asset Multiple Input yield-generation yield, and decentralized finance/regenerative finance protocols while maintaining multi-party

computation-secured custody, bankruptcy-remote status, and any applicable regulatory and quantum-resistant security at every layer.

Independent Claim 58 (System – Infrastructure-as-a-Service Compliance Stack with Sovereign Identifiers)

A tokenized Web4 banking system comprising a licensable Infrastructure-as-a-Service compliance stack organized into sovereign-identifier-protected layers including Application, Repository, Smart Contract, Embedded Accounting and Banking Functions, and Compliance and Risk Oversight layers, wherein each microservice and smart contract is assigned a unique sovereign identifier derived from a Web Object identifier plus timestamp plus superkernel hash, enabling isolated, self-managing execution while enforcing one-to-one reserve parity, bankruptcy-remote sub-custody, and full regulatory compliance.

Independent Claim 59 (Method – Sovereign-Identifier Microservice Deployment and Orchestration)

A computer-implemented method for deploying tokenized banking infrastructure comprising: generating a unique sovereign identifier for each microservice and smart contract at instantiation; packaging the Infrastructure-as-a-Service compliance stack as a deployable artifact; allowing third-party regulated entities to instantiate the stack under their own sovereign identifiers; and automatically orchestrating the microservices via an artificial intelligence bot swarm protected by object/root-level kernel or superkernel and Web4 Security Scheme object-level encryption.

Independent Claim 60 (System – Infrastructure-as-a-Service Stack with Embedded Real-Time Accounting and Risk Microservices)

A Web4 banking system comprising an Infrastructure-as-a-Service compliance stack that

embeds real-time generally accepted accounting principles or International Financial Reporting Standards normalization, Basel III/IV loan-to-value/probability of default/loss given default/exposure at default calculations, stress-testing, dual-side risk mitigation, and self-financing facility logic as native microservices, all executed under sovereign identifiers and quantum-resistant encryption while maintaining one-to-one par reserves and GENIUS Act leverage exemptions.

Independent Claim 61 (Method – Licensable Infrastructure-as-a-Service Deployment with Network-Effect Yield Integration)

A computer-implemented method for infrastructure finance comprising licensing an Infrastructure-as-a-Service compliance stack to third-party institutions, wherein each deployment contributes to the overall Web4 network effect; automatically recycling yield share and claw-back recoveries into the real-world asset Multiple Input yield-generation circular model; and enforcing compliance, security, and one-to-one reserve rules at the object/root level via superkernel protection.

Independent Claim 62 (Method – Infrastructure-as-a-Service Compliance Stack with Sovereign Identifiers and Microservices)

A computer-implemented method for tokenized banking comprising packaging the entire tokenized banking, risk management, and regulatory framework as a licensable Infrastructure-as-a-Service compliance stack with sovereign-identifier-protected microservices that enable any compliant third-party bank or fund to instantiate a complete tokenized banking instance while preserving one-to-one par reserves, bankruptcy-remote sub-custody accounts, and full regulatory compliance.

Independent Claim 63 (System – Infrastructure-as-a-Service Compliance Stack with Sovereign Identifiers and Microservices)

A tokenized Web4 banking system comprising a licensable Infrastructure-as-a-Service compliance stack organized into sovereign-identifier-protected layers including Application, Repository, Smart Contract, Embedded Accounting and Banking Functions, and Compliance and Risk Oversight layers, wherein each microservice and smart contract is assigned a unique sovereign identifier derived from a Web Object identifier plus timestamp plus superkernel hash, enabling isolated, self-managing execution while enforcing one-to-one reserve parity, bankruptcy-remote sub-custody, and full regulatory compliance.

Independent Claim 64 (Method – Sovereign-Identifier Microservice Deployment and Orchestration)

A computer-implemented method for deploying tokenized banking infrastructure comprising: generating a unique sovereign identifier for each microservice and smart contract at instantiation; packaging the Infrastructure-as-a-Service compliance stack as a deployable artifact; allowing third-party regulated entities to instantiate the stack under their own sovereign identifiers; and automatically orchestrating the microservices via an artificial intelligence bot swarm protected by object/root-level kernel or superkernel and Web4 Security Scheme object-level encryption.

Independent Claim 65 (System – Infrastructure-as-a-Service Stack with Embedded Real-Time Accounting and Risk Microservices)

A Web4 banking system comprising an Infrastructure-as-a-Service compliance stack that embeds real-time generally accepted accounting principles or International Financial Reporting Standards normalization, Basel III/IV loan-to-value/probability of default/loss

given default/exposure at default calculations, stress-testing, dual-side risk mitigation, and self-financing facility logic as native microservices, all executed under sovereign identifiers and quantum-resistant encryption while maintaining one-to-one par reserves and GENIUS Act leverage exemptions.

### **Section 11: Real-World Asset Multiple-Input Yield-Generation Circular Model**

Independent Claim 66 (Method – Real-World Asset Multiple Input Yield-Generation Circular Model)

A computer-implemented method for generating yields from any tokenized natural-resource real-world asset interoperable with any distributed ledger technology and any accounting standard, comprising an artificial intelligence-driven Multiple Input yield-generation circular model that combines real-world asset fund structure, tax efficiencies under any jurisdictional incentive regime, carbon accounting and Sustainable Development Goals value capture, transaction, block, or time based (daily) automatic compounding, Web4 network effect, proxy-tokenized hypothecation, institutional staking, and loop multiplier, with dynamic allocation, cross-real-world asset arbitrage, and automated rebalancing on any distributed ledger technology.

Independent Claim 67 (Method – Real-World Asset Multiple Input Yield-Generation Circular Model)

A computer-implemented method for generating yields from tokenized natural-resource real-world assets comprising an artificial intelligence-driven Multiple Input yield-generation circular model that combines: (1) real-world asset fund structure with private equity, private credit, stocks, bonds, derivatives, other funds, or growth instruments allocation, (2) tax

efficiencies under any jurisdictional incentive regime, (3) carbon accounting and Sustainable Development Goals value capture, (4) transaction, block, or time (daily) automatic compounding of yields, (5) Web4 network effect driving liquidity and adoption, (6) proxy-tokenized hypothecation within bank lending facilities, (7) institutional staking services, and (8) loop multiplier (targeting 5×), with dynamic allocation, cross-real-world asset arbitrage, predictive analytics, and automated portfolio rebalancing to maximize circular yield generation.

Independent Claim 68 (System – Multiple Input Yield-Generation Model Integrated with Interest-Free Banking and Primary/Spot Market Issuance)

A structured real-world asset primary/spot market system comprising the real-world asset Multiple Input yield-generation circular model that automatically feeds newly issued tokens into interest-free deposit, payment, and loan instruments while recycling all banking transaction proceeds (loans, repayments, staking rewards) back into the Multiple Input yield loop under any jurisdictional tax optimization.

Independent Claim 69 (Method – Dynamic Loop Multiplier and Cross-Real-World Asset Arbitrage in Yield Generation)

A computer-implemented method for real-world asset yield generation comprising an artificial intelligence-orchestrated loop multiplier (targeting 5×) achieved through proxy-tokenized hypothecation and reinvestment, combined with automated cross-real-world asset arbitrage that identifies and executes opportunities across tokenized natural-resource assets to maximize circular yield while maintaining risk parameters defined by the object/root-level kernel or superkernel.

Independent Claim 70 (Method – Artificial Intelligence-Agent-Driven Real-Time Optimization of the Multiple Input Yield-Generation Circular Model)

A computer-implemented method for real-world asset yield generation comprising an artificial intelligence-orchestrated Multiple Input yield-generation circular model executed by the object/root-level kernel or superkernel, wherein one or more specialized artificial intelligence agents and the agentic commerce layer continuously monitor, predict, and optimize each of the yield inputs in real time at the object/root level with self-healing and quantum-resistant execution.

Independent Claim 71 (System – On-Chain Verifiable Yield Attestation and Dynamic Sustainable Development Goals Yield Allocation)

A real-world asset Multiple Input yield-generation circular model system comprising on-chain verifiable yield attestation via cryptographically signed timestamped Merkle proofs logged on the timestamp-based non-repeatable distributed ledger technology and fed into the accounting normalization layer, combined with dynamic smart-contract allocation of a portion of generated yield to assets, creating a regenerative feedback loop that enhances carbon accounting credits and token value.

Independent Claim 72 (Method – Cross-Real-World Asset Arbitrage Automation Integrated with the Circular Model)

A computer-implemented method for circular yield generation comprising autonomous identification and execution of cross-real-world asset arbitrage opportunities using real-world asset communication protocol data feeds, with all arbitrage profits automatically recycled into the Multiple Input yield-generation circular model under the supervision of the object/root-level kernel or superkernel.

Independent Claim 73 (System – Modular Integration of Creative Equity and Multiple Input Yield-Generation Loop)

A tokenized yield-generation system comprising the real-world asset Multiple Input yield-generation circular model integrated with creative industry equity monetization such that usage-metric-driven creative equity tokens can be pledged into the treasury and participate fully in the Multiple Input yield loop, with all operations protected by quantum-resistant one-time pad (non-repeating numeric sequence) encryption and object-level isolation.

Independent Claim 74 (Method – Self-Reinforcing Real-World Asset Multiple Input Yield-Generation Circular Model)

A computer-implemented method for generating yields from any tokenized natural-resource real-world asset interoperable with any blockchain or distributed ledger technology and any accounting standard, comprising an artificial intelligence-driven Multiple Input yield-generation circular model in which multiple distinct inputs—real-world asset fund structure with private equity, private credit, stocks, bonds, derivatives, other funds, or growth instruments allocation, tax efficiencies under any jurisdictional incentive regime, carbon accounting and sustainability value capture, transaction, block, or time (daily) based automatic compounding of yields, Web4 network effect driving liquidity and adoption, proxy-tokenized hypothecation within bank lending facilities, institutional tokenization and staking services, and a configurable loop multiplier—continuously feed into and reinforce one another to create a self-sustaining circular yield loop executed on any distributed ledger technology.

Independent Claim 75 (System – Calculus-Based Differential Equation Engine for Infinite-Scale Circular Yield Generation)

A tokenized banking system comprising a real-world asset Multiple Input yield-generation circular model powered by a calculus-based differential equation engine that dynamically processes infinite-scale collateral inputs and outputs across the yield inputs while preserving principal, never charging interest or fees, and generating exponential profits through automated hypothecation, reinvestment, transaction, block, or time (daily) based compounding, network-effect velocity, and loop-multiplier amplification on any distributed ledger technology.

Independent Claim 76 (Method – Predictive Analytics and Automated Rebalancing Within the Circular Yield Model)

A computer-implemented method for real-world asset yield generation comprising an artificial intelligence-orchestrated Multiple Input yield-generation circular model that uses predictive analytics and automated portfolio rebalancing to continuously optimize the interaction of the yield inputs in real time, dynamically adjusting allocation, loop multiplier, and cross-real-world asset arbitrage opportunities based on real-time data feeds while maintaining risk parameters defined by the object/root-level kernel or superkernel.

Independent Claim 77 (System – Regenerative Feedback Loop with On-Chain Verifiable Yield Input Attestation)

A real-world asset Multiple Input yield-generation circular model system comprising on-chain verifiable attestation of each individual yield input via cryptographically signed timestamped Merkle proofs logged on the timestamp-based non-repeatable distributed ledger technology, combined with a regenerative feedback loop that automatically allocates a portion of generated yield to high-scoring sustainability projects, thereby enhancing

carbon accounting credits, sustainability value capture, and overall token intrinsic value under any jurisdictional tax-optimized treasury structure.

Independent Claim 78 (Method – Hybrid Quantum-Resistant Protection of Circular Yield Web Objects)

A computer-implemented method for secure circular yield generation comprising instantiating each yield-input calculation, compounding operation, and rebalancing decision as a unique immutable Web Object protected by the object-level encryption scheme and the quantum-resistant one-time pad (non-repeating numeric sequence) subsystem (using either Internet of Things-derived or Web-Object-based non-repeating sequences), wherein the object/root-level kernel or superkernel enforces self-healing restoration and direct object-to-object communication across the entire Multiple Input circular model on any distributed ledger technology.

Independent Claim 79 (Method – Object-Level Encryption Scheme)

A computer-implemented method for quantum-tolerant encryption interoperable with any distributed ledger technology comprising instantiating each transaction or data element as a unique immutable Web Object with its own autonomous kernel under an object-level encryption scheme on any distributed ledger technology, wherein security is intrinsic to the data object and direct object-to-object communication occurs between digital wallets on any distributed ledger technology.

Independent Claim 80 (Method – Web4 Security Scheme Intrinsic Object-Level Encryption)

A computer-implemented method for Web4 security comprising: instantiating every transaction, token record, or data element as a unique immutable Web Object possessing a globally unique object identifier and a precise timestamp of instantiation; encrypting the

plaintext payload of the Web Object using the quantum-resistant one-time pad (non-repeating numeric sequence) subsystem; and storing the resulting ciphertext as an integral part of the Web Object itself, thereby embedding security intrinsically at the object level.

## **Section 12: Object-Level Encryption Scheme**

### **Independent Claim 81 (Method – Object-Level Encryption Scheme)**

A computer-implemented method for quantum-tolerant encryption interoperable with any distributed ledger technology comprising instantiating each transaction or data element as a unique immutable Web Object with its own autonomous kernel under an object-level encryption scheme on any distributed ledger technology, wherein security is intrinsic to the data object and direct object-to-object communication occurs between digital wallets on any distributed ledger technology.

### **Independent Claim 82 (Method – Web4 Security Scheme Intrinsic Object-Level Encryption)**

A computer-implemented method for Web4 security comprising: instantiating every transaction, token record, or data element as a unique immutable Web Object possessing a globally unique object identifier and a precise timestamp of instantiation; encrypting the plaintext payload of the Web Object using the quantum-resistant one-time pad (non-repeating numeric sequence) subsystem; and storing the resulting ciphertext as an integral part of the Web Object itself, thereby embedding security intrinsically at the object level.

### **Independent Claim 83 (System – Direct Object-to-Object Communication under Object-Level Encryption Rules)**

A Web4 banking system comprising the object-level encryption scheme wherein Web Objects communicate and execute directly with one another using rules enforced by the

object/root-level kernel or superkernel, with authorization validated solely by intrinsic object-level encryption matching and object-level isolation, eliminating intermediaries, oracles, and centralized validators.

Independent Claim 84 (Method – Self-Authenticating and Self-Healing Web Objects)

A computer-implemented method for Web4 security comprising: embedding a cryptographically signed proof-of-authenticity within each Web Object for independent verification of integrity and provenance; and enabling the object/root-level kernel or superkernel to perform on-the-fly malicious code rewriting or autonomous self-healing restoration from quantum-resistant one-time pad (non-repeating numeric sequence)-encrypted distributed ledger technology backups while preserving the non-repeating one-time pad (non-repeating numeric sequence) sequence and object-level isolation.

Independent Claim 85 (System – Universal Object-Level Encryption Integration Across the Full Web4 Banking Archetype)

A tokenized Web4 banking system comprising the object-level encryption scheme integrated universally across the Real World Asset Communication Protocol, tokenized banking services, fractional-reserve pledging, institutional tokenization and staking services, RWA multiple input yield-generation circular model, consumption-tax mechanism, creative industry equity monetization, accounting normalization, agentic commerce layer, and DeFi/ReFi protocols, with all operations executed as atomic, self-secured Web Objects under the object/root-level kernel or superkernel.

### **Section 13: Agentic Commerce Layer**

Independent Claim 86 (Method – Agentic Commerce Layer)

A computer-implemented method for agentic commerce in a Web4 banking system interoperable with any distributed ledger technology comprising autonomous artificial intelligence agents that perform negotiation and execution of any real-world asset-backed trades or payments, fraud detection, personalized regenerative commerce, and yield optimization via autonomous routing, portfolio rebalancing, predictive analytics, and tax/compounding engine functions on any distributed ledger technology.

Independent Claim 87 (Method – Autonomous Agentic Commerce via Web-Object Swarm Negotiation)

A computer-implemented method for agentic commerce comprising: instantiating specialized artificial intelligence agents as self-contained Web Objects under the object-level encryption scheme; enabling direct object-to-object negotiation and consensus among agent swarms mediated by the object/root-level kernel or superkernel; and executing negotiated transactions (loans, staking, arbitrage, royalty adjustments) atomically without human intervention or external oracles.

Independent Claim 88 (System – Predictive Yield Optimization and Consumption-Tax Pre-Computation Engine)

An agentic commerce system comprising artificial intelligence agents that continuously ingest real-world asset communication protocol data, forecast real-world asset Multiple Input yield-generation components, pre-compute consumption-tax impacts, and autonomously rebalance portfolios, adjust loop multipliers, or route proceeds to high-Sustainable Development Goals projects, with all optimizations executed under kernel or superkernel self-healing and quantum-resistant one-time pad (non-repeating numeric sequence) protection.

Independent Claim 89 (Method – Autonomous Fraud Detection and Self-Healing Agent Swarm Resilience)

A computer-implemented method for secure agentic commerce comprising: real-time anomaly detection by agents using kernel or superkernel static/dynamic analysis of transaction Web Objects; automatic rejection, claw-back, or quarantine of flagged activities; and autonomous redistribution of tasks across the agent swarm with self-healing restoration from one-time pad (non-repeating numeric sequence)-encrypted distributed ledger technology backups while preserving transaction atomicity.

#### **Section 14: Jurisdictional Tax-Optimized Treasury Structure**

Independent Claim 90 (Method – Jurisdictional Tax-Optimized Treasury Structure)

A computer-implemented method for tax-optimized treasury management in a Web4 banking system interoperable with any jurisdiction comprising integration of any equivalent tax-incentive regime to provide preferential tax rates, investor deductions, capital gains exemptions, and rollover provisions, enabling closed-loop compounding across tokenized banking and real-world asset services on any distributed ledger technology.

Independent Claim 91 (Method – Smart-Contract Automated Jurisdictional Tax-Incentive Application)

A computer-implemented method for tax optimization comprising: structuring a Web4 banking treasury under any equivalent jurisdictional tax-incentive regime; encoding the full suite of incentives (preferential tax rates, exemptions, investor deductions, and capital gains exemptions with rollover provisions) directly into smart contracts; and applying these incentives atomically by the object/root-level kernel or superkernel to every on-chain flow

(deposits, loans, staking rewards, consumption-tax proceeds, creative equity royalties, and real-world asset Multiple Input yield-generation returns).

Independent Claim 92 (System – Token-Level Inheritance of Jurisdictional Tax Treatment with Treasury Allocation)

A tax-optimized treasury system comprising the real-world asset Multiple Input yield-generation circular model with dynamic allocation between tokenized natural-resource collateral and a private equity, private credit, stocks, bonds, derivatives, other funds, or growth instruments fund, wherein every tokenized asset inherits jurisdictional tax treatment by design, enabling seamless preferential taxation and capital-gains treatment on qualifying reinvestments executed under the object-level encryption scheme and kernel or superkernel supervision.

Independent Claim 93 (Method – Regenerative Tax-Neutral Yield Loop with Dynamic Tax-Rate Switching)

A computer-implemented method for regenerative finance comprising: automatically allocating a portion of tax-optimized yield to high-Sustainable Development Goals projects; enforcing holding-period rules for capital-gains treatment on all reinvestments; and enabling dynamic tax-rate switching by the object/root-level kernel or superkernel based on jurisdictional parameters while generating real-time accounting-compliant Merkle-proof attestations for regulatory auditability.

## **Section 15: GENIUS Act Leverage Exemptions for Higher Borrowing Ratios**

Independent Claim 94 (Method – GENIUS Act Leverage Exemption Engine)

A computer-implemented method for tokenized banking comprising: attesting approved

real-world asset or stablecoin reserves via sovereign-identifier Reserve Audit microservices; applying Guiding and Establishing National Innovation for United States Stablecoins (GENIUS) Act leverage exemptions to bypass Dodd-Frank Collins Amendment constraints; calculating an effective borrowing multiplier of up to sixty times or greater on said reserves; and issuing LOAN tokens at the elevated ratio while enforcing one-to-one par reserve backing and bankruptcy-remote sub-custody at all times.

Independent Claim 95 (System – Real-Time GENIUS Leverage Integration with Basel Engine)

A Web4 banking system comprising a GENIUS Act Leverage Exemption Engine that dynamically integrates elevated borrowing ratios (sixty times plus) with the Basel III/IV adapted loan-to-value/probability of default/loss given default/exposure at default engine, dual-side risk mitigation layers, and self-financing facility, wherein all calculations and enforcement occur under sovereign-identifier microservices protected by object/root-level kernel or superkernel and Web4 Security Scheme object-level encryption.

Independent Claim 96 (Method – Closed-Loop Leverage Yield Recycling)

A computer-implemented method comprising applying Guiding and Establishing National Innovation for United States Stablecoins (GENIUS) Act leverage exemptions to expand lending capacity, generating additional yield from the expanded LOAN positions, and automatically recycling a configurable yield share (baseline fifteen percent) together with claw-back recoveries into the pledgor's real-world asset treasury and the real-world asset Multiple Input yield-generation circular model to compound per transaction, block, or time (daily) and support further proxy-tokenized hypothecation looping.

Independent Claim 97 (System – Licensable Infrastructure-as-a-Service GENIUS Leverage Microservice)

A licensable Infrastructure-as-a-Service system comprising a sovereign-identifier GENIUS Leverage microservice that enables any compliant third-party institution to deploy elevated borrowing ratios of up to sixty times plus on approved real-world asset reserves while maintaining one-to-one par backing, real-time stress testing, and full integration with the self-financing facility, dual-side risk mitigation, and network-effect yield generation.

#### Additional Claims Covering All Merged Novel Concepts (Claims 98–137)

Independent Claim 98 (Method – Basel III/IV Adapted Real-Time Loan-to-Value and Expected Loss Engine for Tokenized Real-World Assets)

A computer-implemented method for risk management in a tokenized Web4 banking system comprising: receiving real-time oracle collateral values and LOAN exposures for tokenized real-world assets; calculating loan-to-value subscript t using Basel III/IV adapted thresholds specific to each real-world asset type; dynamically adjusting loss given default based on proximity to a configurable liquidation trigger; computing expected loss as probability of default times loss given default adjusted times exposure at default; and enforcing hard-coded policy limits and automated liquidation via smart contracts.

Independent Claim 99 (System – Integrated Basel Stress-Testing Infrastructure-as-a-Service Microservice)

A Web4 banking system comprising a sovereign-identifier Infrastructure-as-a-Service risk microservice that executes both a normal Basel III/IV loan-to-value/expected loss calculation and a configurable stress-test scenario (price-drop percentage) in a single atomic call, returning current loan-to-value, stressed loan-to-value, expected-loss values, risk-increase

percentage, and status flags, with all outputs attested on-chain and protected by object/root-level kernel or superkernel execution.

Independent Claim 100 (Method – Dynamic Loss Given Default Proximity Adjustment Integrated with Dual-Side Risk Mitigation)

A computer-implemented method comprising calculating an adjusted loss given default using the proximity formula base loss given default times  $(1 + \max(0, (\text{loan-to-value} - \text{target loan-to-value})) / (\text{liquidation trigger} - \text{target loan-to-value}))$ , applying real-world asset-type-specific Basel III/IV calibrated baselines, and feeding the resulting risk parameters directly into the inbound dynamic adjustment layer and outbound LOAN token claw-back layer to achieve sixty to eighty percent lower expected loss than traditional banking.

Independent Claim 101 (System – Licensable Infrastructure-as-a-Service Basel Risk Stack with GENIUS Leverage Integration)

A licensable Infrastructure-as-a-Service system comprising a sovereign-identifier Basel III/IV risk microservice that applies adapted loan-to-value/probability of default/loss given default/exposure at default baselines and stress testing to tokenized real-world assets, integrates with GENIUS Act leverage exemptions (up to sixty times plus), self-financing facilities, and the real-world asset Multiple Input yield-generation circular model, while maintaining one-to-one par reserve backing and quantum-resistant object-level encryption.

Independent Claim 102 (Method – Integrated Stress-Testing Infrastructure-as-a-Service Microservice)

A computer-implemented method for risk management in a tokenized Web4 banking system comprising: invoking a sovereign-identifier Infrastructure-as-a-Service stress-testing

microservice that executes both a normal Basel III/IV loan-to-value/expected loss calculation and a configurable stress-test scenario (price-drop percentage and volatility adjustment) in a single atomic transaction; computing stressed collateral, stressed loan-to-value, stressed loss given default (proximity-based), stressed expected loss, and risk-increase percentage; and returning a combined structured result object for immediate artificial intelligence bot swarm action.

Independent Claim 103 (System – Atomic Stress-Test Microservice with Closed-Loop Feedback)

A Web4 banking system comprising a sovereign-identifier Infrastructure-as-a-Service stress-testing microservice that computes normal and stressed Basel III/IV risk parameters in one atomic call and automatically feeds the risk-increase percentage and stressed status into the inbound dynamic loan-to-value adjustment layer, outbound LOAN token claw-back layer, self-financing facility yield-share recycling, and real-world asset Multiple Input yield-generation circular model for real-time policy adjustment and compounding.

Independent Claim 104 (Method – Stress-Test-Driven Dynamic Policy Adjustment)

A computer-implemented method comprising executing stress-test scenarios within the Infrastructure-as-a-Service risk microservice, deriving a risk-increase percentage, and dynamically adjusting loan-to-value policy limits, loss given default escalation factors, GENIUS Act leverage multipliers, and multiple yield-input circular model parameters in real time while maintaining one-to-one par reserve backing and quantum-resistant object-level encryption.

Independent Claim 105 (System – Licensable Infrastructure-as-a-Service Stress-Testing Stack for Real-World Asset Infrastructure)

A licensable Infrastructure-as-a-Service system comprising a sovereign-identifier stress-testing microservice that supports configurable price-drop and volatility scenarios for tokenized real-world assets, integrates atomic results with dual-side risk mitigation and self-financing facilities, and enables real-time settlement compression in infrastructure finance (aviation, energy, automation) under superkernel protection and GENIUS Act compliance.

Independent Claim 106 (Method – International Swaps and Derivatives Association Variation Margin Credit Support Annex Pledge with Full Title Waiver)

A computer-implemented method for tokenized collateral pledging comprising: executing a Custody and Pledging Agreement modeled on the 2016 International Swaps and Derivatives Association Variation Margin Credit Support Annex under New York law; granting the bank only a limited special proprietary legal interest without title transfer; embedding a full waiver of title transfer (even in pledgor or bank insolvency) as immutable smart-contract metadata; and instantiating the pledged real-world assets as sovereign-identifier Web Objects in bankruptcy-remote special/sub-custody accounts.

Independent Claim 107 (System – Bankruptcy-Remote Sub-Custody Accounts with Federal Deposit Insurance Corporation-Equivalent Spreading)

A Web4 banking system comprising bankruptcy-remote special and sub-custody accounts that automatically fragment pledged tokenized real-world assets across multiple isolated accounts ( $\leq$  two hundred fifty thousand dollars equivalent per account) to achieve Federal Deposit Insurance Corporation-like protection, wherein each account is a sovereign-identifier Web Object protected by object/root-level kernel or superkernel and Web4 Security Scheme object-level encryption, with full title remaining with the pledgor at all times.

Independent Claim 108 (Method – On-Chain International Swaps and Derivatives Association Remedy Enforcement Without Title Transfer)

A computer-implemented method comprising monitoring pledged positions under an International Swaps and Derivatives Association Variation Margin Credit Support Annex-modeled smart contract, detecting trigger events via the Basel III/IV loan-to-value engine or stress-testing microservice, and atomically enforcing remedies (margin calls, claw-back, or liquidation) solely against the limited special proprietary interest while preserving pledgor beneficial ownership, economic upside, and full title waiver.

Independent Claim 109 (System – Licensable Infrastructure-as-a-Service International Swaps and Derivatives Association Pledge Microservice)

A licensable Infrastructure-as-a-Service system comprising a sovereign-identifier International Swaps and Derivatives Association Variation Margin Credit Support Annex pledge microservice that implements the full title-waiver legal opinion, bankruptcy-remote sub-custody with Federal Deposit Insurance Corporation-equivalent spreading, and atomic on-chain remedy enforcement for tokenized real-world assets, enabling any compliant third-party institution to deploy the identical structure while integrating with self-financing facilities, dual-side risk mitigation, GENIUS Act leverage exemptions, and the real-world asset Multiple Input yield-generation circular model under superkernel protection.

Independent Claim 110 (Method – Environmental, Social, and Governance/Sustainable Development Goals Yield Credit Integration into Circular Model)

A computer-implemented method for tokenized banking comprising: ingesting real-world asset telemetry via artificial intelligence agents and computing hybrid carbon accounting and environmental, social, and governance value using activity-based and spend-based

methodologies compliant with the five pillars of carbon accounting; quantifying verified sustainability metrics as tokenized yield credits; and adding said credits as Input 3 to the real-world asset Multiple Input yield-generation circular model for a per transaction, block, or time (daily) compounding, proxy-tokenized hypothecation, and loop-multiplier enhancement.

Independent Claim 111 (System – Dynamic Environmental, Social, and Governance Risk Adjustment in Basel Engine)

A Web4 banking system comprising a sovereign-identifier environmental, social, and governance/Sustainable Development Goals microservice that dynamically adjusts Basel III/IV loan-to-value, probability of default, loss given default, and expected loss parameters based on three-dimensional/quaternion environmental, social, and governance scoring vectors, thereby reducing expected loss and feeding lower risk parameters into the dual-side risk mitigation architecture, self-financing facility, and LOAN token claw-back enforcement.

Independent Claim 112 (Method – Closed-Loop Environmental, Social, and Governance Yield Recycling)

A computer-implemented method comprising calculating environmental, social, and governance-derived yield credits in real time, recycling said credits as additional yield share (baseline fifteen percent) into the pledgor's real-world asset treasury position, and automatically incorporating the recycled credits into the multiple yield-input circular model to compound per transaction, block, or time (daily) and support further below-prime borrowing under GENIUS Act leverage exemptions.

Independent Claim 113 (System – Licensable Infrastructure-as-a-Service Environmental, Social, and Governance/Carbon Accounting Microservice)

A licensable Infrastructure-as-a-Service system comprising a sovereign-identifier environmental, social, and governance/carbon accounting microservice that integrates hybrid methodologies, McKinsey five-ways environmental, social, and governance value creation, and real-time generally accepted accounting principles or International Financial Reporting Standards normalization into the real-world asset Multiple Input yield-generation circular model, executes under object/root-level kernel or superkernel protection and Web4 Security Scheme object-level encryption, and enables any compliant third-party institution to deploy the identical sustainability-yield engine while preserving one-to-one reserve backing and full regulatory compliance.

Independent Claim 114 (Method – Real-Time Settlement in Real-World Asset Infrastructure Finance)

A computer-implemented method for infrastructure finance comprising: tokenizing productive real-world assets as real-world asset tokens; continuously recalculating collateral value and borrowing capacity in real time via oracle feeds and the Basel III/IV loan-to-value engine; executing atomic settlement of LOANS and REPAY payments at block confirmation; and aligning financial recognition speed with continuous economic production output without discrete reporting cycles or idle capital buffers.

Independent Claim 115 (System – Atomic Unified-State Settlement Layer)

A Web4 banking system comprising an Infrastructure-as-a-Service real-time settlement layer that collapses execution, clearing, settlement, and custody into a single atomic transaction for tokenized real-world asset infrastructure assets while preserving International Swaps and Derivatives Association Variation Margin Credit Support Annex no-title-transfer pledge, bankruptcy-remote sub-custody accounts, and full title waiver.

Independent Claim 116 (Method – Closed-Loop Settlement Integration with Yield Model)

A computer-implemented method comprising performing real-time settlement of tokenized infrastructure real-world assets, automatically recycling settlement proceeds and environmental, social, and governance/Sustainable Development Goals yield credits into the pledgor's self-financing facility position, and feeding the continuous capital turnover directly into the real-world asset Multiple Input yield-generation circular model as Input 5 (Web4 Network Effect) to support proxy-tokenized hypothecation and targeting 5× loop multipliers under GENIUS Act leverage exemptions.

Independent Claim 117 (System – Licensable Infrastructure-as-a-Service Real-Time Real-World Asset Settlement Microservice)

A licensable Infrastructure-as-a-Service system comprising a sovereign-identifier real-time settlement microservice that enables any compliant third-party institution to deploy continuous collateralization and atomic settlement for real-world asset infrastructure finance (aviation, energy, automation), integrated with dual-side risk mitigation, self-financing facilities, Basel III/IV risk parameters, and the full real-world asset Multiple Input yield-generation circular model under object/root-level kernel or superkernel protection and Web4 Security Scheme object-level encryption.

Independent Claim 118 (Method – Basel III/IV Adapted Real-Time Loan-to-Value and Expected Loss Engine for Tokenized Real-World Assets)

A computer-implemented method for risk management in a tokenized Web4 banking system comprising: receiving real-time oracle collateral values and LOAN exposures for tokenized real-world assets; calculating loan-to-value subscript  $t$  using Basel III/IV adapted thresholds specific to each real-world asset type; dynamically adjusting loss given default

based on proximity to a configurable liquidation trigger; computing expected loss as probability of default times loss given default adjusted times exposure at default; and enforcing hard-coded policy limits and automated liquidation via smart contracts.

Independent Claim 119 (System – Integrated Basel Stress-Testing Infrastructure-as-a-Service Microservice)

A Web4 banking system comprising a sovereign-identifier Infrastructure-as-a-Service risk microservice that executes both a normal Basel III/IV loan-to-value/expected loss calculation and a configurable stress-test scenario (price-drop percentage) in a single atomic call, returning current loan-to-value, stressed loan-to-value, expected-loss values, risk-increase percentage, and status flags, with all outputs attested on-chain and protected by object/root-level kernel or superkernel execution.

Independent Claim 120 (Method – Dynamic Loss Given Default Proximity Adjustment Integrated with Dual-Side Risk Mitigation)

A computer-implemented method comprising calculating an adjusted loss given default using the proximity formula base loss given default times  $(1 + \max(0, (\text{loan-to-value} - \text{target loan-to-value}) / (\text{liquidation trigger} - \text{target loan-to-value})))$ , applying real-world asset-type-specific Basel III/IV calibrated baselines, and feeding the resulting risk parameters directly into the inbound dynamic adjustment layer and outbound LOAN token claw-back layer to achieve sixty to eighty percent lower expected loss than traditional banking.

Independent Claim 121 (System – Licensable Infrastructure-as-a-Service Basel Risk Stack with GENIUS Leverage Integration)

A licensable Infrastructure-as-a-Service system comprising a sovereign-identifier Basel III/IV

risk microservice that applies adapted loan-to-value/probability of default/loss given default/exposure at default baselines and stress testing to tokenized real-world assets, integrates with GENIUS Act leverage exemptions (up to sixty times plus), self-financing facilities, and the real-world asset Multiple Input yield-generation circular model, while maintaining one-to-one par reserve backing and quantum-resistant object-level encryption.

Independent Claim 122 (Method – Integrated Stress-Testing Infrastructure-as-a-Service Microservice)

A computer-implemented method for risk management in a tokenized Web4 banking system comprising: invoking a sovereign-identifier Infrastructure-as-a-Service stress-testing microservice that executes both a normal Basel III/IV loan-to-value/expected loss calculation and a configurable stress-test scenario (price-drop percentage and volatility adjustment) in a single atomic transaction; computing stressed collateral, stressed loan-to-value, stressed loss given default (proximity-based), stressed expected loss, and risk-increase percentage; and returning a combined structured result object for immediate artificial intelligence bot swarm action.

Independent Claim 123 (System – Atomic Stress-Test Microservice with Closed-Loop Feedback)

A Web4 banking system comprising a sovereign-identifier Infrastructure-as-a-Service stress-testing microservice that computes normal and stressed Basel III/IV risk parameters in one atomic call and automatically feeds the risk-increase percentage and stressed status into the inbound dynamic loan-to-value adjustment layer, outbound LOAN token claw-back layer, self-financing facility yield-share recycling, and real-world asset Multiple Input yield-generation circular model for real-time policy adjustment and compounding.

Independent Claim 124 (Method – Stress-Test-Driven Dynamic Policy Adjustment)

A computer-implemented method comprising executing stress-test scenarios within the Infrastructure-as-a-Service risk microservice, deriving a risk-increase percentage, and dynamically adjusting loan-to-value policy limits, loss given default escalation factors, GENIUS Act leverage multipliers, and multiple yield-input circular model parameters in real time while maintaining one-to-one par reserve backing and quantum-resistant object-level encryption.

Independent Claim 125 (System – Licensable Infrastructure-as-a-Service Stress-Testing Stack for Real-World Asset Infrastructure)

A licensable Infrastructure-as-a-Service system comprising a sovereign-identifier stress-testing microservice that supports configurable price-drop and volatility scenarios for tokenized real-world assets, integrates atomic results with dual-side risk mitigation and self-financing facilities, and enables real-time settlement compression in infrastructure finance (aviation, energy, automation) under superkernel protection and GENIUS Act compliance.

Independent Claim 126 (Method – International Swaps and Derivatives Association Variation Margin Credit Support Annex Pledge with Full Title Waiver)

A computer-implemented method for tokenized collateral pledging comprising: executing a Custody and Pledging Agreement modeled on the 2016 International Swaps and Derivatives Association Variation Margin Credit Support Annex under New York law; granting the bank only a limited special proprietary legal interest without title transfer; embedding a full waiver of title transfer (even in pledgor or bank insolvency) as immutable smart-contract metadata; and instantiating the pledged real-world assets as sovereign-identifier Web Objects in bankruptcy-remote special/sub-custody accounts.

Independent Claim 127 (System – Bankruptcy-Remote Sub-Custody Accounts with Federal Deposit Insurance Corporation-Equivalent Spreading)

A Web4 banking system comprising bankruptcy-remote special and sub-custody accounts that automatically fragment pledged tokenized real-world assets across multiple isolated accounts ( $\leq$  two hundred fifty thousand dollars equivalent per account) to achieve Federal Deposit Insurance Corporation-like protection, wherein each account is a sovereign-identifier Web Object protected by object/root-level kernel or superkernel and Web4 Security Scheme object-level encryption, with full title remaining with the pledgor at all times.

Independent Claim 128 (Method – On-Chain International Swaps and Derivatives Association Remedy Enforcement Without Title Transfer)

A computer-implemented method comprising monitoring pledged positions under an International Swaps and Derivatives Association Variation Margin Credit Support Annex-modeled smart contract, detecting trigger events via the Basel III/IV loan-to-value engine or stress-testing microservice, and atomically enforcing remedies (margin calls, claw-back, or liquidation) solely against the limited special proprietary interest while preserving pledgor beneficial ownership, economic upside, and full title waiver.

Independent Claim 129 (System – Licensable Infrastructure-as-a-Service International Swaps and Derivatives Association Pledge Microservice)

A licensable Infrastructure-as-a-Service system comprising a sovereign-identifier International Swaps and Derivatives Association Variation Margin Credit Support Annex pledge microservice that implements the full title-waiver legal opinion, bankruptcy-remote sub-custody with Federal Deposit Insurance Corporation-equivalent spreading, and atomic

on-chain remedy enforcement for tokenized real-world assets, enabling any compliant third-party institution to deploy the identical structure while integrating with self-financing facilities, dual-side risk mitigation, GENIUS Act leverage exemptions, and the real-world asset Multiple Input yield-generation circular model under superkernel protection.

Independent Claim 130 (Method – Environmental, Social, and Governance/Sustainable Development Goals Yield Credit Integration into Circular Model)

A computer-implemented method for tokenized banking comprising: ingesting real-world asset telemetry via artificial intelligence agents and computing hybrid carbon accounting and environmental, social, and governance value using activity-based and spend-based methodologies compliant with the five pillars of carbon accounting; quantifying verified sustainability metrics as tokenized yield credits; and adding said credits as Input 3 to the real-world asset Multiple Input yield-generation circular model for transaction, block, or time (daily) compounding, proxy-tokenized hypothecation, and loop-multiplier enhancement.

Independent Claim 131 (System – Dynamic Environmental, Social, and Governance Risk Adjustment in Basel Engine)

A Web4 banking system comprising a sovereign-identifier environmental, social, and governance/Sustainable Development Goals microservice that dynamically adjusts Basel III/IV loan-to-value, probability of default, loss given default, and expected loss parameters based on three-dimensional/quaternion environmental, social, and governance scoring vectors, thereby reducing expected loss and feeding lower risk parameters into the dual-side risk mitigation architecture, self-financing facility, and LOAN token claw-back enforcement.

Independent Claim 132 (Method – Closed-Loop Environmental, Social, and Governance Yield Recycling)

A computer-implemented method comprising calculating environmental, social, and governance-derived yield credits in real time, recycling said credits as additional yield share (baseline fifteen percent) into the pledgor's real-world asset treasury position, and automatically incorporating the recycled credits into the multiple yield-input circular model to compound per transaction, block, or time (daily) and support further below-prime borrowing under GENIUS Act leverage exemptions.

Independent Claim 133 (System – Licensable Infrastructure-as-a-Service Environmental, Social, and Governance/Carbon Accounting Microservice)

A licensable Infrastructure-as-a-Service system comprising a sovereign-identifier environmental, social, and governance/carbon accounting microservice that integrates hybrid methodologies, McKinsey five-ways environmental, social, and governance value creation, and real-time generally accepted accounting principles or International Financial Reporting Standards normalization into the real-world asset Multiple Input yield-generation circular model, executes under object/root-level kernel or superkernel protection and Web4 Security Scheme object-level encryption, and enables any compliant third-party institution to deploy the identical sustainability-yield engine while preserving one-to-one reserve backing and full regulatory compliance.

Independent Claim 134 (Method – Real-Time Settlement in Real-World Asset Infrastructure Finance)

A computer-implemented method for infrastructure finance comprising: tokenizing productive real-world assets as real-world asset tokens; continuously recalculating collateral

value and borrowing capacity in real time via oracle feeds and the Basel III/IV loan-to-value engine; executing atomic settlement of LOANS and REPAY payments at block confirmation; and aligning financial recognition speed with continuous economic production output without discrete reporting cycles or idle capital buffers.

#### Independent Claim 135 (System – Atomic Unified-State Settlement Layer)

A Web4 banking system comprising an Infrastructure-as-a-Service real-time settlement layer that collapses execution, clearing, settlement, and custody into a single atomic transaction for tokenized real-world asset infrastructure assets while preserving International Swaps and Derivatives Association Variation Margin Credit Support Annex no-title-transfer pledge, bankruptcy-remote sub-custody accounts, and full title waiver.

#### Independent Claim 136 (Method – Closed-Loop Settlement Integration with Yield Model)

A computer-implemented method comprising performing real-time settlement of tokenized infrastructure real-world assets, automatically recycling settlement proceeds and environmental, social, and governance/Sustainable Development Goals yield credits into the pledgor's self-financing facility position, and feeding the continuous capital turnover directly into the real-world asset Multiple Input yield-generation circular model as Input 5 (Web4 Network Effect) to support proxy-tokenized hypothecation and targeting 5x loop multipliers under GENIUS Act leverage exemptions.

#### Independent Claim 137 (System – Licensable Infrastructure-as-a-Service Real-Time Real-World Asset Settlement Microservice)

A licensable Infrastructure-as-a-Service system comprising a sovereign-identifier real-time settlement microservice that enables any compliant third-party institution to deploy continuous collateralization and atomic settlement for real-world asset infrastructure

finance (aviation, energy, automation), integrated with dual-side risk mitigation, self-financing facilities, Basel III/IV risk parameters, and the full real-world asset Multiple Input yield-generation circular model under object/root-level kernel or superkernel protection and Web4 Security Scheme object-level encryption.

#### Independent Claim 138 (Method – Real-World Asset Fund Structure)

A computer-implemented method for real-world asset fund management in a hybrid tokenized banking system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising: accepting any verifiable real-world asset as collateral; pledging the asset into a customer-owned bankruptcy-remote special or sub-custody account without title transfer on any distributed ledger technology; tokenizing the asset for inclusion in a modular fund structure; deploying capital into private equity, private credit, stocks, bonds, derivatives, other funds, or growth instruments under any jurisdictional tax-incentive regime; and dynamically rebalancing the fund allocation using real-time data from any real-world asset communication protocol while maintaining one-to-one par reserve backing.

#### Independent Claim 139 (System – Sovereign-Identifier Real-World Asset Fund Structure Microservice)

A hybrid tokenized banking system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising a sovereign-identifier Infrastructure-as-a-Service microservice that implements a real-world asset fund structure as an input to any real-world asset multiple input yield-generation circular model, enabling pooling of tokenized real-

world assets with private equity, private credit, stocks, bonds, derivatives, other funds, or growth instruments, atomic rebalancing, tax-optimized structures under any jurisdictional incentive regime, and full integration with any self-financing facilities and any dual-side risk mitigation.

Independent Claim 140 (Method – Tax-Optimized Growth Instrument Integration into Real-World Asset Fund Structure)

A computer-implemented method for real-world asset fund management in any tokenized banking system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising: deploying capital from the real-world asset fund structure into private equity, private credit, stocks, bonds, derivatives, other funds, or growth instruments that qualify for preferential tax rates, investor deductions, and capital gains exemptions under any equivalent jurisdictional incentive regime; generating yield from those instruments; and automatically recycling that yield as an additional input to any multiple input yield-generation circular model for block, transaction, or time (daily) compounding, proxy-tokenized hypothecation, and loop multiplier enhancement on any distributed ledger technology.

Independent Claim 141 (System – Agentic Commerce Orchestration of Real-World Asset Fund Rebalancing)

A tokenized banking system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising an agentic commerce layer that uses x402 Agent Payment Required and related x4xx family interfaces to autonomously negotiate and execute

rebalancing decisions within any real-world asset fund structure, incorporating environmental, social, and governance or Sustainable Development Goals scoring vectors and real-time Basel III/IV loan-to-value compliance before recycling proceeds into any self-financing facility and any multiple input yield-generation circular model.

Independent Claim 142 (Method – Closed-Loop Yield Recycling from Real-World Asset Fund Structure)

A computer-implemented method for real-world asset fund management in any tokenized banking system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising: generating yield at the fund level from direct real-world asset income and private equity, private credit, stocks, bonds, derivatives, other funds, or growth instruments distributions; automatically allocating a configurable yield share into pledgor positions within any self-financing facility; and feeding the recycled amount directly into any multiple input yield-generation circular model to support per transaction, block, or time (daily) compounding and proxy-tokenized hypothecation looping on any distributed ledger technology.

Independent Claim 143 (System – Real-Time Carbon Accounting and Environmental, Social, and Governance Adjustment within Real-World Asset Fund Structure)

A tokenized banking system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising a real-world asset fund structure microservice that dynamically adjusts private equity, private credit, stocks, bonds, derivatives, other funds, or growth instruments allocation based on real-time carbon accounting and environmental,

social, and governance value creation metrics, thereby increasing tokenized yield credits, reducing loss given default in any Basel III/IV engine, and enhancing overall circular model performance while preserving one-to-one par reserve backing and full title waiver under any International Swaps and Derivatives Association Variation Margin Credit Support Annex pledge structure.

Independent Claim 144 (Method – Licensable Infrastructure-as-a-Service Deployment of Real-World Asset Fund Structure)

A computer-implemented method for infrastructure finance in any tokenized banking system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising licensing a sovereign-identifier real-world asset fund structure microservice to any compliant third-party institution, wherein the deployed fund enables pooling of tokenized real-world assets with private equity, private credit, stocks, bonds, derivatives, other funds, or growth instruments, atomic rebalancing, and closed-loop recycling into any multiple input circular model while operating under object/root-level kernel or superkernel protection and quantum-resistant one-time pad (non-repeating numeric sequence) encryption on any distributed ledger technology.

Independent Claim 145 (System – Integrated Real-World Asset Fund Structure with Real-Time Settlement and GENIUS Act Leverage)

A tokenized banking system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising a real-world asset fund structure integrated with real-time settlement in real-world asset infrastructure, GENIUS Act leverage exemptions for higher

borrowing ratios, and dual-side risk mitigation, wherein fund-level capital turnover is compressed to block confirmation and all allocations are validated against any Basel III/IV loan-to-value and expected loss parameters before execution on any distributed ledger technology.

Independent Claim 146 (Method – Modular Real-World Asset Fund Structure with Cross-Real-World Asset Arbitrage)

A computer-implemented method for real-world asset fund management in any tokenized banking system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising: accepting any commodity, security, infrastructure, or verifiable asset into the real-world asset fund structure; performing cross-real-world asset arbitrage across tokenized positions on any distributed ledger technology; and automatically recycling arbitrage profits into any multiple input yield-generation circular model under the supervision of the object/root-level kernel or superkernel while maintaining one-to-one par reserve backing and bankruptcy-remote custody.

Independent Claim 147 (System – Real-World Asset Fund Structure with Dynamic Tax-Efficiency Multiplier)

A tokenized banking system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising a real-world asset fund structure microservice that applies a dynamic tax-efficiency multiplier based on any jurisdictional incentive regime to private equity, private credit, stocks, bonds, derivatives, other funds, or growth instruments

allocations, thereby optimizing overall yield contribution to any multiple input circular model while preserving one-to-one par reserve backing and full regulatory compliance.

Independent Claim 148 (Method – Agentic Commerce-Driven Allocation within Real-World Asset Fund Structure)

A computer-implemented method for real-world asset fund management in any tokenized banking system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising: using the agentic commerce layer and x402 or x4xx family interfaces to autonomously negotiate and execute transactions involving commodities, private equity, private credit, stocks, bonds, derivatives, other funds, other digital assets, or growth instrument allocations within the real-world asset fund structure; incorporating real-time risk adjustment; and recycling resulting yield into any self-financing facility and any multiple input yield-generation circular model.

Independent Claim 149 (System – Real-World Asset Fund Structure with Real-Time Basel III/IV Compliance Validation)

A tokenized banking system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising a real-world asset fund structure that performs real-time validation against any Basel III/IV loan-to-value, probability of default, loss given default, and expected loss parameters before any allocation or rebalancing, while maintaining one-to-one par reserve backing and bankruptcy-remote custody on any distributed ledger technology.

Independent Claim 150 (Method – Real-World Asset Fund Structure with Integrated Stress Testing)

A computer-implemented method for real-world asset fund management in any tokenized banking system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising: executing configurable stress-test scenarios within the Infrastructure-as-a-Service risk microservice on the real-world asset fund structure; deriving risk-increase percentages; and dynamically adjusting fund allocations, private equity, private credit, stocks, bonds, derivatives, other funds, or growth instruments exposure, and circular model parameters in real time while preserving one-to-one par reserve backing.

Independent Claim 151 (System – Real-World Asset Fund Structure with Sovereign-Identifier IAAS Microservice and Full Interoperability)

A tokenized banking system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising a sovereign-identifier Infrastructure-as-a-Service microservice that implements the real-world asset fund structure with full interoperability to any tokenized banking services, any self-financing facilities, any dual-side risk mitigation, any multiple input yield-generation circular model, any real-time settlement layer, and any carbon accounting or environmental, social, and governance value creation integration while maintaining quantum-resistant one-time pad (non-repeating numeric sequence) encryption and object/root-level kernel or superkernel protection.

Independent Claim 152 (Method – Real-World Asset Fund Structure with Closed-Loop ESG and Carbon Accounting Feedback)

A computer-implemented method for real-world asset fund management in any tokenized banking system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising: embedding real-time carbon accounting and environmental, social, and governance value creation metrics as a dynamic adjustment factor within the real-world asset fund structure; increasing tokenized yield credits and reducing loss given default in any Basel III/IV engine; and feeding the adjusted metrics back into any multiple input yield-generation circular model for regenerative compounding.

Independent Claim 153 (System – Licensable Real-World Asset Fund Structure with Atomic Rebalancing and Yield Recycling)

A licensable Infrastructure-as-a-Service system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising a sovereign-identifier real-world asset fund structure microservice that enables atomic rebalancing of tokenized real-world assets with private equity, private credit, stocks, bonds, derivatives, other funds, or growth instruments and automatically recycles fund-level yield into any self-financing facility and any multiple input circular model under object/root-level kernel or superkernel protection and quantum-resistant one-time pad (non-repeating numeric sequence) encryption on any distributed ledger technology.

Independent Claim 154 (Method – Real-World Asset Fund Structure with Cross-Real-World Asset Arbitrage and Network-Effect Integration)

A computer-implemented method for real-world asset fund management in any tokenized banking system operable across any traditional (Web2) financial system, any blockchain-

based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising: performing cross-real-world asset arbitrage across tokenized positions within the real-world asset fund structure; and automatically recycling arbitrage profits into any multiple input yield-generation circular model as part of the Web4 network effect input while maintaining one-to-one par reserve backing and bankruptcy-remote custody on any distributed ledger technology.

Independent Claim 155 (System – Real-World Asset Fund Structure with Integrated GENIUS Act Leverage and Real-Time Settlement)

A tokenized banking system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising a real-world asset fund structure integrated with GENIUS Act leverage exemptions for higher borrowing ratios and real-time settlement in real-world asset infrastructure, wherein all fund allocations and capital turnover are validated against any Basel III/IV parameters before execution on any distributed ledger technology.

Independent Claim 156 (Method – Modular Real-World Asset Fund Structure with Dynamic Tax-Efficiency and ESG Adjustment)

A computer-implemented method for real-world asset fund management in any tokenized banking system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising: applying a dynamic tax-efficiency multiplier based on any jurisdictional incentive regime and real-time environmental, social, and governance or carbon accounting metrics to private equity, private credit, stocks, bonds, derivatives, other funds, or growth instruments allocations within the real-world asset fund structure; and

automatically optimizing overall yield contribution to any multiple input circular model while preserving one-to-one par reserve backing.

Independent Claim 157 (System – Real-World Asset Fund Structure with Agentic Commerce Negotiation via x402 Interfaces)

A tokenized banking system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising an agentic commerce layer that autonomously negotiates private equity, private credit, stocks, bonds, derivatives, other funds, or growth instruments allocations within the real-world asset fund structure using x402 Agent Payment Required and related x4xx family interfaces, incorporating real-time Basel III/IV compliance and yield recycling into any self-financing facility and any multiple input circular model.

Independent Claim 158 (Method – Real-World Asset Fund Structure with Full Title Waiver and Bankruptcy-Remote Custody)

A computer-implemented method for real-world asset fund management in any tokenized banking system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising: pledging any real-world asset into customer-owned bankruptcy-remote special or sub-custody accounts under an International Swaps and Derivatives Association Variation Margin Credit Support Annex structure with full title waiver; tokenizing the asset for inclusion in the real-world asset fund structure; and maintaining bankruptcy-remote ownership while enabling atomic rebalancing and yield recycling on any distributed ledger technology.

Independent Claim 159 (System – Real-World Asset Fund Structure with Integrated Stress Testing and Dynamic LGD Adjustment)

A tokenized banking system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising a real-world asset fund structure that executes configurable stress-test scenarios and dynamically adjusts loss given default based on proximity to liquidation triggers within any Basel III/IV engine, feeding adjusted risk parameters into any dual-side risk mitigation and any multiple input yield-generation circular model.

Independent Claim 160 (Method – Real-World Asset Fund Structure with Sovereign-Identifier IAAS Microservice and Quantum-Resistant Protection)

A computer-implemented method for real-world asset fund management in any tokenized banking system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising: deploying a sovereign-identifier Infrastructure-as-a-Service microservice that implements the real-world asset fund structure under object/root-level kernel or superkernel protection and Web4 Security Scheme object-level encryption with quantum-resistant one-time pad (non-repeating numeric sequence) sequences; and enabling licensed third-party deployment while preserving one-to-one par reserve backing and full regulatory compliance on any distributed ledger technology.

Independent Claim 161 (System – Real-World Asset Fund Structure with Closed-Loop Integration to All Banking Services)

A tokenized banking system operable across any traditional (Web2) financial system, any

blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising a real-world asset fund structure that integrates closed-loop yield recycling with any self-financing facility, any dual-side risk mitigation, any LOAN token claw-back, any Basel III/IV risk parameters, any Infrastructure-as-a-Service compliance stack, any GENIUS Act leverage exemptions, and any multiple input yield-generation circular model while maintaining one-to-one par reserve backing.

Independent Claim 162 (Method – Real-World Asset Fund Structure with Real-Time Settlement Compression)

A computer-implemented method for real-world asset fund management in any tokenized banking system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising: compressing capital turnover within the real-world asset fund structure to block confirmation through real-time settlement in real-world asset infrastructure; aligning financial recognition with continuous economic production speed; and feeding the accelerated turnover directly into any multiple input yield-generation circular model on any distributed ledger technology.

Independent Claim 163 (System – Real-World Asset Fund Structure with Full Web2/Web3/Web4 Interoperability)

A tokenized banking system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising a real-world asset fund structure that maintains full interoperability with any tokenized banking services, any accounting normalization layer, any creative industry equity monetization, any consumption tax mechanism, any quantum-

resistant encryption subsystem, and any agentic commerce layer while preserving one-to-one par reserve backing and bankruptcy-remote custody.

Independent Claim 164 (Method – Real-World Asset Fund Structure with Agentic Commerce x402 Negotiation for Digital Assets)

A computer-implemented method for real-world asset fund management in any tokenized banking system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising: using the agentic commerce layer to issue x402 Agent Payment Required Interface requests for commodities, private equity, private credit, stocks, bonds, derivatives, other funds, or growth instruments allocations within the real-world asset fund structure; evaluating the requests against real-time risk parameters and environmental, social, and governance scoring; and executing approved allocations atomically with yield recycling into any multiple input circular model.

Independent Claim 165 (System – Real-World Asset Fund Structure with Dynamic ESG and Carbon Accounting Feedback Loop)

A tokenized banking system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising a real-world asset fund structure microservice that creates a closed-loop feedback mechanism using real-time carbon accounting and environmental, social, and governance value creation metrics to dynamically adjust fund allocations, reduce loss given default in any Basel III/IV engine, and increase tokenized yield credits within any multiple input yield-generation circular model.

Independent Claim 166 (Method – Real-World Asset Fund Structure with Licensable Sovereign-Identifier IAAS Deployment and Full Regulatory Compliance)

A computer-implemented method for infrastructure finance in any tokenized banking system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising licensing a sovereign-identifier Infrastructure-as-a-Service microservice that implements the real-world asset fund structure with atomic rebalancing, tax-optimized commodities private equity, private credit, stocks, bonds, derivatives, other funds, or growth instruments participation, closed-loop yield recycling, and full integration with any self-financing facility, any dual-side risk mitigation, any Basel III/IV risk engine, any GENIUS Act leverage exemptions, and any real-time settlement layer while preserving one-to-one par reserve backing and bankruptcy-remote custody on any distributed ledger technology.

Independent Claim 167 (Method – Informatics Graph as Non-Linear Operating System)

A computer-implemented method for data processing in any tokenized banking system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising: representing every data element, transaction, or software component as a unique immutable Web Object within a non-linear informatics graph; treating data and software as synonymous; performing verification, authentication, and forensic accounting of all data ingestion, structuring, and outflows at the graph level; and enabling the graph to operate as a self-referential, self-correcting operating system that refactors componentry on-the-fly using holonomial hashing and object/root-level kernel or superkernel execution.

Independent Claim 168 (System – Holonomial Hashing and Self-Referential Informatics Graph)

A hybrid tokenized banking system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising an informatics graph that uses holonomial hashing with 1-bit succinct binary representations of root primes, symbols, and syntax to restructure web operations at the logic level, rewrite operations at the object level, and reorganize operations at the network level, wherein the graph treats all information as self-factored objects, components, and self-referencing libraries with each method call instantiated as a reference architecture.

Independent Claim 169 (Method – Superkernel as Meta-Orchestration Layer)

A computer-implemented method for infrastructure orchestration in any tokenized banking system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising deploying a lightweight (~125 KB) superkernel that functions as both datacenter infrastructure and a meta-orchestration layer for any operating system, any artificial intelligence or agentic system, and any Web3 tokenization effort, wherein the superkernel executes all operations as self-referential Web Objects within an informatics graph under quantum-resistant one-time pad (non-repeating numeric sequence) encryption.

Independent Claim 170 (System – SLM with VML-to-VML Learning via Informatics Graph)

A tokenized banking system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising an informatics graph that functions as a small language

model with virtual machine to virtual machine learning, providing exact-match referencing on Web Objects to replace third-party corpuses, search engines, or unstructured databases for all data inferences, verification, authentication, and forensic accounting while enabling self-correction and on-the-fly refactoring of componentry.

Independent Claim 171 (Method – Radical Object-Oriented Programming with Self-Referential Hierarchy)

A computer-implemented method for data and software processing in any tokenized banking system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising implementing radical object-oriented programming in which all information is self-factored in the order of objects, components, and self-referencing libraries, wherein each method call on an object is an instantiated reference architecture within a self-referential hierarchy that enables the entire system to self-correct and refactor componentry on-the-fly under object/root-level kernel or superkernel protection.

Independent Claim 172 (System – Informatics Graph as Foundational Web4 Infrastructure)

A hybrid tokenized banking system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising an informatics graph that serves as the foundational non-linear operating system for all Web4 infrastructure, integrating real-world asset communication protocol data ingestion, tokenized banking services, real-world asset multiple input yield-generation circular model execution, agentic commerce negotiation via x402 and x4xx interfaces, Infrastructure-as-a-Service compliance stack operations, and real-time settlement while maintaining one-to-one par reserve backing, bankruptcy-remote

custody, and quantum-resistant one-time pad (non-repeating numeric sequence) encryption.

Independent Claim 173 (Method – Informatics Graph with Full Interoperability and Self-Healing)

A computer-implemented method for secure data processing in any tokenized banking system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising operating an informatics graph that performs self-referential dynamic analysis, on-the-fly malicious-code rewriting, and self-healing restoration from quantum-resistant one-time pad (non-repeating numeric sequence)-encrypted distributed ledger technology backups, enabling seamless interoperability with any operating system, any artificial intelligence or agentic system, and any Web3 tokenization protocol while providing exact-match referencing on Web Objects.

Independent Claim 174 (System – Informatics Graph with Holonomial Hashing for Post-Quantum Security)

A tokenized banking system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising an informatics graph that uses holonomial hashing with 1-bit succinct binary representations of root primes, symbols, and syntax to simulate or bypass post-quantum cryptography, restructure web operations at the logic level, rewrite operations at the object level, and reorganize operations at the network level while maintaining object/root-level kernel or superkernel protection and Web4 Security Scheme object-level encryption.

Independent Claim 175 (Method – Meta-Orchestration of OSs, AI Agents, and Web3

Tokenization via Informatics Graph)

A computer-implemented method for meta-orchestration in any tokenized banking system operable across any traditional (Web2) financial system, any blockchain-based (Web3) decentralized finance environment, and any hybrid (Web4) object-oriented architecture, comprising using a lightweight superkernel-driven informatics graph as a meta framework that orchestrates any other operating system, any artificial intelligence or agentic system (including x402 and x4xx interfaces), and any Web3 tokenization effort while performing verification, authentication, forensic accounting, and self-refactoring of all data and software operations on any distributed ledger technology.

Independent Claim 176 (Method – x402 Payment Protocol Integration via Informatics

Graph)

A computer-implemented method for agentic commerce in any tokenized banking system operable across any traditional financial system, any blockchain-based decentralized finance environment, and any hybrid object-oriented architecture, comprising: receiving an HTTP request for a resource; responding with an x402 Payment Required status code containing payment instructions; instantiating the request, instructions, payment authorization, and proof as self-referential Web Objects within a non-linear informatics graph; verifying settlement through holonomial hashing and object/root-level kernel or superkernel analysis; and delivering the resource while recycling any yield share into a multiple input real-world asset yield-generation circular model.

Independent Claim 177 (System – Kernel or Superkernel-Orchestrated x402 Agentic

Payment Flows)

A tokenized banking system operable across any traditional financial system, any blockchain-

based decentralized finance environment, and any hybrid object-oriented architecture, comprising an object/root-level kernel or superkernel that orchestrates x402 Payment Protocol flows by treating every payment instruction and authorization as a programmable Web Object, performing real-time self-correction and refactoring, and integrating the resulting payments with interest-free tokenized banking services and self-financing facilities while maintaining one-to-one par reserve backing and quantum-resistant protection.

Independent Claim 178 (Method – Agentic x4xx Interface Family for x402 Negotiation)

A computer-implemented method for autonomous agentic commerce in any tokenized banking system operable across any traditional financial system, any blockchain-based decentralized finance environment, and any hybrid object-oriented architecture, comprising: deploying specialized artificial intelligence agents that use the x4xx family of interfaces (including x402 Agent Payment Required) to negotiate, evaluate, execute, and confirm x402 payments; and feeding the resulting transactions directly into any self-financing facility or multiple input yield-generation circular model under superkernel supervision and informatics graph exact-match referencing.

Independent Claim 179 (System – Licensable x402 Microservice within IAAS Compliance Stack)

A tokenized banking system operable across any traditional financial system, any blockchain-based decentralized finance environment, and any hybrid object-oriented architecture, comprising a sovereign-identifier Infrastructure-as-a-Service microservice that implements and extends the x402 Payment Protocol with full interoperability to any distributed ledger technology, any artificial intelligence agent framework, and any jurisdictional tax-optimized treasury structure while preserving bankruptcy-remote custody and real-time settlement.

Independent Claim 180 (Method – x402 Flow with Holonomial Hashing and Yield Recycling)

A computer-implemented method for secure micropayments in any tokenized banking system operable across any traditional financial system, any blockchain-based decentralized finance environment, and any hybrid object-oriented architecture, comprising: executing an x402 Payment Protocol handshake; applying holonomial hashing with 1-bit succinct binary representations of root primes, symbols, and syntax to every Web Object in the payment flow; verifying and attesting the transaction via the non-linear informatics graph; and automatically allocating a configurable yield share from the payment into any multiple input real-world asset yield-generation circular model for regenerative compounding and proxy-tokenized hypothecation.

Independent Claim 181 (Method – Decentralized Governance System)

A computer-implemented method for tokenized banking and financial services operable across any traditional financial system, any blockchain-based decentralized finance environment, and any hybrid object-oriented architecture, comprising: operating a non-linear informatics graph and object/root-level kernel or superkernel as a decentralized governance system, wherein participation is not limited to or under the control of any person or group under common control, and routine, ministerial, or limited cybersecurity actions do not constitute centralized control.

Independent Claim 182 (System – Regulation Crypto Exemption for Ancillary Assets)

A tokenized banking system operable across any traditional financial system, any blockchain-based decentralized finance environment, and any hybrid object-oriented architecture, comprising a real-world asset fund structure and primary/spot market framework that issues ancillary assets and network tokens in reliance on regulation, with automated initial and semiannual disclosures attested on-chain via the informatics graph.

Independent Claim 183 (Method – IAAS Compliance with Bank Secrecy Act and Risk Management)

A computer-implemented method for regulatory compliance in any tokenized banking system operable across any traditional financial system, any blockchain-based decentralized finance environment, and any hybrid object-oriented architecture, comprising deploying sovereign-identifier Infrastructure-as-a-Service microservices that satisfy Bank Secrecy Act, anti-money laundering, sanctions, and risk management standards through real-time informatics graph verification and superkernel self-correction.

Independent Claim 184 (System – NIST Post-Quantum Integration)

A tokenized banking system operable across any traditional financial system, any blockchain-based decentralized finance environment, and any hybrid object-oriented architecture, comprising a quantum-resistant encryption subsystem and holonomial hashing that voluntarily adopts National Institute of Standards and Technology post-quantum cryptography standards while maintaining one-to-one par reserve backing and object/root-level kernel or superkernel protection.

Independent Claim 185 (Method – Bankruptcy-Remote Custody with Customer Property Protections)

A computer-implemented method for tokenized banking and financial services operable across any traditional financial system, any blockchain-based decentralized finance environment, and any hybrid object-oriented architecture, comprising pledging real-world assets into bankruptcy-remote special or sub-custody accounts that qualify for customer property protections and insolvency safe harbors for ancillary assets and digital commodities.

Independent Claim 186 (System – Alignment with Payment Stablecoin Yield Prohibition)

A tokenized banking system operable across any traditional financial system, any blockchain-based decentralized finance environment, and any hybrid object-oriented architecture, comprising interest-free tokenized banking services and a three-token model that complies with the prohibition on passive interest or yield on payment stablecoin balances while enabling regenerative yield-share recycling through the multiple input real-world asset yield-generation circular model.

Independent Claim 187 (Method – CFTC-SEC Sandbox Testing of Innovations)

A computer-implemented method for innovation testing in any tokenized banking system operable across any traditional financial system, any blockchain-based decentralized finance environment, and any hybrid object-oriented architecture, comprising participating in the CFTC-SEC micro-innovation sandbox to test extensions of the x402 Payment Protocol, agentic commerce layer, real-world asset multiple input yield-generation circular model, and Infrastructure-as-a-Service microservices.

Independent Claim 188 (System – Tokenization of Securities Support)

A tokenized banking system operable across any traditional financial system, any blockchain-based decentralized finance environment, and any hybrid object-oriented architecture, comprising institutional tokenization and staking services that support tokenized securities receiving the same regulatory treatment as the underlying securities.

Independent Claim 189 (Method – Holistic Compliance via Informatics Graph)

A computer-implemented method for tokenized banking and financial services operable across any traditional financial system, any blockchain-based decentralized finance environment, and any hybrid object-oriented architecture, comprising using a non-linear informatics graph and superkernel to provide exact-match referencing, forensic accounting,

and automated compliance with all definitions, exemptions, safe harbors, and obligations under regulatory compliance, including decentralized governance, Regulation Crypto, Bank Secrecy Act, post-quantum standards, bankruptcy protections, and stablecoin rules.

Independent Claim 190 (System – Licensable IAAS with Full Regulatory Interoperability)

A tokenized banking system operable across any traditional financial system, any blockchain-based decentralized finance environment, and any hybrid object-oriented architecture, comprising a sovereign-identifier Infrastructure-as-a-Service compliance stack that is licensable and fully interoperable with regulated frameworks while preserving one-to-one par reserve backing, quantum-resistant protection, and regenerative yield generation.

Independent Claim 191 (Method – DeFi Protocol Compliance)

A computer-implemented method for decentralized finance innovation in any tokenized banking system operable across any traditional financial system, any blockchain-based decentralized finance environment, and any hybrid object-oriented architecture, comprising operating real-world asset trading protocols and distributed ledger applications as compliant with regulatory compliance by qualifying as decentralized through the informatics graph and superkernel while satisfying illicit finance obligations and risk management standards.

Independent Claim 192 (System – Offshore Stablecoin and Illicit Finance Risk Mitigation)

A tokenized banking system operable across any traditional financial system, any blockchain-based decentralized finance environment, and any hybrid object-oriented architecture, comprising real-time monitoring and reporting capabilities within the IAAS compliance stack that address offshore stablecoin risks and illicit finance obligations.

Independent Claim 193 (Method – Voluntary Cybersecurity Program Integration)

A computer-implemented method for cybersecurity compliance in any tokenized banking system operable across any traditional financial system, any blockchain-based decentralized

finance environment, and any hybrid object-oriented architecture, comprising voluntary participation in the NIST-run cybersecurity program for decentralized finance trading protocols, with kernel or superkernel-orchestrated code transparency and audit attestation via the informatics graph.

Independent Claim 194 (Method – AI RWA Issuance Backed by AI Resources and Usage Tokens/Credits)

A computer-implemented method for tokenized banking and financial services operable across any traditional financial system, any blockchain-based decentralized finance environment, and any hybrid object-oriented architecture, comprising: verifying and pooling AI resources (compute capacity, data centers, storage, networking) and AI usage tokens or credits as real-world assets within a real-world asset fund structure; and issuing tokenized AI real-world assets collateralized by the pooled assets while maintaining one-to-one par reserve backing.

Independent Claim 195 (System – AI Sub-Pool within Real-World Asset Fund Structure)

A tokenized banking system operable across any traditional financial system, any blockchain-based decentralized finance environment, and any hybrid object-oriented architecture, comprising a real-world asset fund structure that includes a dedicated AI sub-pool of verified AI resources and AI usage tokens or credits to collateralize and back the issuance of AI real-world assets under object/root-level superkernel orchestration and non-linear informatics graph verification.

Independent Claim 196 (Method – Regenerative Yield from AI Resource Utilization)

A computer-implemented method for yield generation in any tokenized banking system operable across any traditional financial system, any blockchain-based decentralized finance environment, and any hybrid object-oriented architecture, comprising: generating revenue

from utilization of pooled AI resources and redemption of AI usage tokens or credits; and automatically recycling that revenue as a regenerative input into a multiple input real-world asset yield-generation circular model for daily compounding, proxy-tokenized hypothecation, and loop multiplier enhancement.

Independent Claim 197 (System – Tokenized Securities Treatment for AI RWAs)

A tokenized banking system operable across any traditional financial system, any blockchain-based decentralized finance environment, and any hybrid object-oriented architecture, comprising institutional tokenization and staking services that issue AI real-world assets receiving the same regulatory treatment as the underlying securities under regulatory compliance, with automated on-chain disclosures attested via the informatics graph.

Independent Claim 198 (Method – Regulation Crypto Compliance for AI Ancillary Assets)

A computer-implemented method for capital formation in any tokenized banking system operable across any traditional financial system, any blockchain-based decentralized finance environment, and any hybrid object-oriented architecture, comprising issuing AI usage tokens or credits as ancillary assets in reliance on Regulation Crypto under regulatory compliance, subject to initial and semiannual disclosures attested on-chain by the non-linear informatics graph.

Independent Claim 199 (System – Bankruptcy-Remote AI Resource Custody)

A tokenized banking system operable across any traditional financial system, any blockchain-based decentralized finance environment, and any hybrid object-oriented architecture, comprising bankruptcy-remote special or sub-custody accounts that hold pooled AI resources and AI usage tokens or credits while qualifying for customer property protections and insolvency safe harbors under regulatory compliance.

Independent Claim 200 (Method – Agentic Commerce for AI Resource Allocation)

A computer-implemented method for agentic commerce in any tokenized banking system operable across any traditional financial system, any blockchain-based decentralized finance environment, and any hybrid object-oriented architecture, comprising using the agentic commerce layer and x402/x4xx interfaces to autonomously negotiate, allocate, and monetize pooled AI resources and usage tokens or credits within the real-world asset fund structure.

Independent Claim 201 (System – IAAS Microservice for AI RWA Issuance)

A tokenized banking system operable across any traditional financial system, any blockchain-based decentralized finance environment, and any hybrid object-oriented architecture, comprising a sovereign-identifier Infrastructure-as-a-Service microservice that implements AI real-world asset issuance backed by AI resources and usage tokens or credits, with full integration to the multiple input yield-generation circular model and real-time Basel III/IV risk validation.

Independent Claim 202 (Method – Holonomial Hashing of AI Usage Data)

A computer-implemented method for secure data processing in any tokenized banking system operable across any traditional financial system, any blockchain-based decentralized finance environment, and any hybrid object-oriented architecture, comprising applying holonomial hashing to AI resource utilization metrics and usage token/credit redemption data within the non-linear informatics graph for exact-match verification and forensic accounting.

Independent Claim 203 (System – Meta-Orchestration of AI RWA Flows)

A tokenized banking system operable across any traditional financial system, any blockchain-based decentralized finance environment, and any hybrid object-oriented architecture,

comprising a lightweight kernel or superkernel that meta-orchestrates AI real-world asset issuance, resource pooling, yield recycling, and compliance as self-referential Web Objects within the non-linear informatics graph.