

2026 Web3 Festival Whitepaper

On-chain Finance and Tokenization in the Era of the Agent Economy

Contents

01	The Agent Economy Restructures Production Relations	01 . 1 /	The Bedrock of the Agent Economy: Silicon-based Labor	03
		01 . 2 /	The Institutional Foundation of the Agent Economy: On-chain Finance	04
02	The Agent Economy Reshapes Value Expression	02 . 1 /	Value Expression Forms of New Productivity	06
		02 . 2 /	Value Circulation Carriers of New Production Relations	06
		02 . 3 /	Value Programmability of New Production Relations	08
03	Deconstructing On-chain Financial Infrastructure	03 . 1 /	Reshaping the Monetary Form	09
		03 . 2 /	Reshaping the Bookkeeping Method	10
		03 . 3 /	Reshaping the Account Structure	10
		03 . 4 /	Reshaping the Clearing and Settlement Structure	11
04	The New Business Paradigm of the Agent Economy	04 . 1 /	Tokenization: Transforming Real-world Assets into Machine-readable Financial Code	13
		04 . 2 /	Three Major Waves of Asset Reshaping	14
		04 . 3 /	Paradigm Endgame: An Autonomous Smart Global Value Network	15
05	Disclaimer			16



Preface

Over the past three years, we have released two successive whitepapers on the Web3 economy. The 2023 edition, *Web3 New Economy and Tokenization*, systematically proposed the "Three-Token Model" for the first time and further constructed a tripartite framework for tokenomics: "Monetary Policy—Mechanism Design—Financial Engineering." The 2024 edition, *The First Principles of the Web3 New Economy*, elevated this framework to a more macro level from the perspectives of value creation, property rights structures, and collaborative mechanisms, defining the economic essence of Web3.

Subsequent industry developments have validated the aforementioned assessments: first, stablecoins have evolved into the cash layer of on-chain finance. As of April 2026, the total value of global stablecoins has reached approximately \$312.6 billion. In parallel, on-chain finance and asset tokenization have moved beyond proof-of-concept and entered a phase of broader implementation. Over the same period, the total value of tokenized US Treasuries was approximately \$13 billion. These developments indicate that blockchain is moving from the infrastructure construction phase towards a broader expansion of applications.

At the same time, however, many projects that have adopted token tools have failed to establish clear hierarchical structures, boundaries of rights and responsibilities, and value-carrying mechanisms. In many cases, tokens have been expected to perform too many functions, while failing to align effectively with real business operations, sustained collaboration, and long-term value capture. Consequently, the Web3 economy has shown fragility and instability in many scenarios. Recent industry discussions also indicate that single-token models and DAO structures often struggle to provide sufficiently clear and stable organizational vehicles when facing more complex business cooperation, legal relationships, and value distribution. The organizational methods and financial arrangements of the previous stage of the Web3 economy can no longer fully adapt to the conditions of the next stage of development. Furthermore, in the absence of genuine underlying business and value support, some tokens have fallen into closed-loop capital circulation without real value creation, ultimately ending in the bursting of economic bubbles.

Against this background, we present this year's third whitepaper in this series, *On-chain Finance and Tokenization in the Era of the Agent Economy*, to return to the core proposition of our time: **as AI Agents become significant participants in the new round of production, collaboration, and transaction activities, how should on-chain finance and tokenization shape a new round of infrastructure deployment.**

I. The Agent Economy Restructures Production Relations CHAP. 01

With the arrival of the Agent Economy era, a massive influx of AI agents and smart devices is breaking down national borders and forming a new, high-frequency, and automated collaboration network.

For example, at a certain intersection, an autonomous vehicle, in order to change lanes safely, may need to purchase three seconds of field-of-vision data from a roadside sensor within 0.1 seconds, with the payment amount being only 0.001 cents. At the same time, the onboard agent might be temporarily leasing five minutes of computing power from another agent in the cloud to plan the optimal route.

In the future, collaboration and transactions among these types of smart devices may occur tens of billions of times each day. Existing financial infrastructure clearly cannot support this kind of high-frequency micro-transaction. To understand the logic behind this, we need to examine two basic levels: first, productivity, namely the technologies and tools that create value; and second, production relations, namely how rights are configured and returns are distributed among participants.

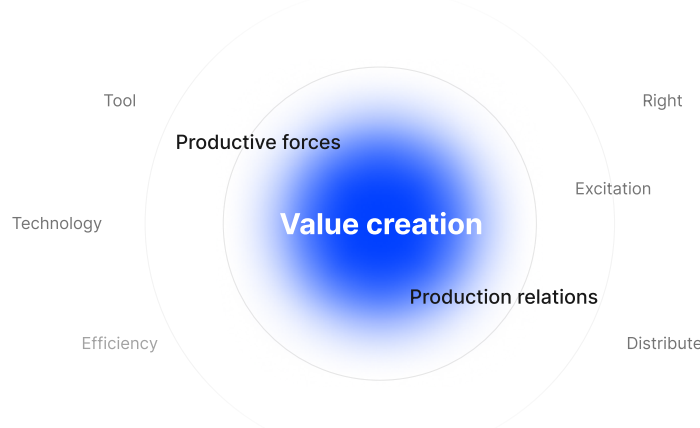


Figure 1: The value loop of productive forces and relations of production

(1) The Bedrock of the Agent Economy: Silicon-based Labor

In the Agent Economy era, silicon-based labor, represented by AI models, agents, and various types of smart devices, constitutes a new form of productivity. It is a new type of labor subject based on algorithms, computing power, and network connectivity, capable of continuous 24/7 operation, autonomous response, and deep participation in collaboration.

Compared with traditional human labor, silicon-based labor possesses several distinct characteristics:

First, it can be infinitely replicated and deployed in parallel, free from the constraints of a single physical individual. For instance, the same customer service agent model can serve tens of thousands of users simultaneously without needing to respond one by one in a queue like human employees.

Second, it is naturally adapted to high-frequency, continuous collaboration scenarios. While humans require hours to process complex information, silicon-based systems can complete reading, calculation, and instruction delivery in milliseconds.

Third, it can be directly embedded within digital systems, running autonomously in a closed loop of "perception-judgment-invocation-feedback," significantly reducing the marginal cost of human participation.

Silicon-based labor is not limited to performing single-point tasks; rather, it is gradually forming networked production capabilities that enable division of labor, collaboration, and composition. For example, in a smart trading scenario: Agent A monitors global market news, price fluctuations, and on-chain data in real-time; Agent B, after identifying abnormal signals, quickly completes risk control verification, price calculation, and transaction condition judgment; Agent C then automatically initiates the trade according to preset strategies and synchronizes the execution results to the ledger and risk control system in real time. In this workflow synergy, value creation no longer depends entirely on the linear labor of a single subject, but is jointly completed through the automated collaboration of multiple agents.

From a historical perspective, every significant leap in productivity has been accompanied by a wholesale upgrade in labor tools, labor objects, and methods of labor organization. Steam engines brought mechanization, electricity brought industrialization, and the Internet brought informatization. The popularization of agent systems is now driving labor capability from "humans operating machines" toward "machines automatically collaborating in production."

Historical experience also indicates that a leap in productivity often catalyzes a corresponding upgrade in production relations. When high-frequency, automated collaboration of millions of agents becomes the norm and existing commercial systems can no longer support it, we need a new infrastructure to carry the matching confirmation mechanisms, contractual arrangements, and value flows. This is precisely where on-chain finance plays its key role.

(2) The Institutional Foundation of the Agent Economy: On-chain Finance

As agents begin to participate extensively in information processing, task execution, and collaborative production, the basic units of economic activity are also changing. Multi-agent collaboration places high demands on institutional efficiency. Traditional physical accounts and manual audit models, when faced with millisecond-level responses and high-frequency micro-transactions, struggle to support the operational needs of large-scale smart economic activities due to excessively long process chains, high costs, and significant friction.

To support the near-real-time invocation and dynamic profit-sharing needs among a massive numbers of agents, an upgrade of production relations is required. On-chain finance (blockchain technology) is the infrastructure designed to address these pain points, primarily reflected in the following three aspects:

On-chain Token: Agents do not have ID cards, nor can they go to a bank to open an account. In the face of this challenge, tokens enable values, permissions, and revenue relationships to be expressed in a finer-grained digital form. Complex rights that originally relied on paper contracts can become digital objects that agents can recognize, track, and program at any time.

Smart Contracts: Transaction conditions, execution sequences, and fulfillment rules are written into code in advance. Delivery and confirmation between agents no longer require manual matching or post-processing. As long as preset conditions are met, the system, much like a vending machine, completes fulfillment instantly, automatically, and consistently.

On-chain Clearing and Settlement: Traditional cross-border clearing and settlement often involve long waiting periods. By

contrast, the value contributions generated by multiple agents around the same workflow can be automatically distributed and settled on a peer-to-peer basis within seconds, according to preset logic.

Over the past decade or so, the advantages of blockchain in rights confirmation and automatic settlement have been fully verified. However, in previous stages, this capability was often limited to the internal circulation of native crypto assets and lacked the support of powerful new productivity. Today, as agents accelerate their entry into real-world production and transactions as a new type of labor force, on-chain finance has encountered application scenarios that are highly compatible with its institutional capabilities. Precisely because of this, the role of blockchain in the Agent Economy era has begun to shift from a technical experiment and financial innovation tool towards an institutional foundation that supports the operation of new production relations.

II. The Agent Economy Reshapes Value Expression

CHAP. 02

In the Agent Economy era, economic activity is no longer limited to transactions between humans but is gradually extending to continuous collaboration between humans and agents, and among agents themselves. In this process, the change in participating subjects not only alters the organization of production and transactions, but also drives changes in the mechanisms for value expression, measurement, and circulation. New productivity requires new units of measurement and forms of value expression; new production relations require new circulation carriers and institutional arrangements. Against this background, the role of the Token is being redefined: it is both an interface for identifying and pricing smart services, and the foundational carrier for transaction relationships to be paid, settled, and distributed. It is therefore becoming the key medium for value expression and value circulation in the Agent Economy.

(1) Value Expression Forms of New Productivity

In the traditional economy, the value of productivity is usually expressed through labor time, raw material input, and the final goods or services produced. After entering the Agent Economy, value measurement begins to evolve toward finer granularity and more digitized forms.

If traditional labor often uses "man-hours" as a universal unit of measurement, then in the Agent Economy, the "AI Token" serves as the foundational unit of measurement. The AI Token mentioned here is not merely a cost unit for a single model call; rather, it can be understood as the smallest semantic unit in information processing. By decomposing unstructured data such as language and images into the smallest units that machines can process, it allows previously vague intelligence capabilities to be sliced into identifiable, measurable, and priceable service units for the first time. Model invocation frequency, context processing length, inference output volume, and underlying computing power consumption thus all begin to become value units that can be identified, measured, and priced.

The significance of the AI Token lies not only in reflecting computing power consumption; its core role is to atomize information and make semantics computable, thereby enabling machines to truly understand the world. Because of this, the AI Token is not only a technical scale for calling invoking capabilities but is also gradually becoming the basic unit for the value expression of new productivity.

(2) Value Circulation Carriers of New Production Relations

The AI Token solves the problem of how smart services are identified, measured, and priced. The on-chain Token solves the problem of how the commercial relationships generated around these services are paid, settled, and executed.

If the AI Token is the smallest semantic unit in the field of information processing, then the on-chain Token can be understood as the smallest programmable unit in the field of value. Through cryptography, distributed ledgers, and smart contracts, it decomposes and encapsulates value carriers such as currency, assets, and rights into trusted, transferable, and orchestratable digital objects, enabling the process of value confirmation and distribution, which originally relied on centralized intermediaries, to gradually transform into an executable on-chain rule system.

1. Value Expression and Circulation

Although both the AI Token and the on-chain Token follow atomized logic, they belong to different levels. The AI Token focuses on the understanding of information semantics, with the goal of enabling machines to understand and process events. The on-chain Token focuses on the confirmation and distribution of value ownership, with the goal of enabling code undertake the confirmation, circulation, and execution of value. **The specific differences between the two are shown in Table 1 below:**

Table 1: Comparison between the AI Token and the On-chain Token

Dimension	AI Token	On-chain Token
Atomized Object	Language/Information	Value/Rights
Core Goal	To enable machines "understand" and compute	To enable code "control" and distribute
Minimum Unit	A single character, a single rootword	A single token, a single equity share
Combination Method	Combined through algorithms into text and code	Combined through smartcontracts into complex financial logic

At the underlying level, both are built upon the continuous operation of computing equipment, electricity consumption, and network maintenance: the AI Token corresponds to the computing resources consumed by model training, inference invocation, and the provision of smart services; the on-chain Token corresponds to the system costs required for on-chain network operation, security maintenance, and value clearing and settlement. Electricity is therefore not only the foundational energy source of the Agent Economy, but also the common cost basis for both types of Tokens. On this basis, information measurement capabilities and value circulation capabilities begin to interconnect, forming a dual-Token structure in the Agent Economy.

2. End-to-End Value Capture

True end-to-end value capture is not about the Token itself; it's about successfully translating data processing into tangible economic value. Fundamentally, the raw text generated by large language models does not inherently translate to economic value. Only when model capabilities are further transformed into specific services, such as content generation, search and Q&A, code assistance, and smart customer service, and generate efficiency gains and cost reduction in real scenarios, does the new productivity truly complete value realization.

This also means that although the AI Token helps machines understand the world, for value to truly enter economic activity, it must further enter the circulation stage. At this stage, service results need to have their ownership confirmed, be exchanged and settled among different participants, and have their returns further distributed when necessary. The role of the on-chain Token becomes apparent here.

As a recordable, transferable, and settlement-capable institutional carrier, it enables service results that originally remained at the application layer to further enter economic relationships such as payment, profit-sharing, collaboration, clearing and settlement. At the same time, the introduction of smart contracts also enables value units to no longer be just static vouchers, but to become programmable structures capable of automatically executing distribution, responding to conditions, and completing transfers. Information processing provides the basis for value distribution, while value flow, in

turn, provides constraints and feedback for information processing, thereby forming a true economic value closed loop for the Agent Economy.

(3) Value Programmability of New Production Relations

In the Agent Economy, on-chain Tokens codify originally abstract legal rights and commercial contracts. They enable rights to move beyond paper contracts lying in filing cabinets but to begin transforming into decomposable, transferable, triggerable, and composable dynamic institutional units, which can be automatically executed by code under preset conditions.

Based on this value programmability, the Three-Token Model remains the most suitable carrier for supporting the underlying architecture of the Agent Economy. According to their attributes and functions, they constitute the basic structure for the operation of the silicon-based economy:

Utility Tokens: These represent the right to use specific networks, computing power resources, and smart services. In the Agent Economy, whether for large model invocation, computing power leasing, or cross-domain data reading, every interaction essentially requires permission verification and fee settlement. The core role of Utility Tokens is to upgrade the permission model, which previously relied on centralized platforms, such as purchasing monthly services or applying for API keys, into on-chain verifiable and executable invocation relationships. They allow multi-party collaboration to run continuously under unified rules and provide the foundational carrier for the subsequent clearing and settlement of underlying value.

Security Tokens: These carry long-term ownership interests in underlying assets, future returns, and cash flows. In the Agent Economy, as new productivity continues to expand, the commercial cooperation behind it will further extend to deeper levels of capital operation, fractional ownership, and revenue distribution. Security Tokens provide the on-chain expression method for this type of capital relationship. They enable asset possession, revenue sharing, and value returns to be organized in a clearer and more flexible manner.

NFTs: NFTs represent the attribution relationship of unique digital objects and serve as unique vouchers for specific assets and records, among which Soulbound Tokens (SBTs) deserve special attention. SBTs are a type of NFT, but as non-freely transferable on-chain vouchers, they are more suitable for carrying continuous identity, permissions, qualifications, reputation, and behavior records. For agents, SBTs are likely the most appropriate form of ID: they can not only identify the characteristics of an agent but also further record the tasks it has completed and its cumulative evaluations. In the internet world, data can naturally be copied at zero cost. In the Agent Economy, if exclusive model weights trained by an agent using massive computing power, or high-value quantitative trading strategies generated by it, could be copied or appropriated by other agents at will. This would directly destroy the basis for charging, authorization, and revenue distribution. The value of NFTs lies in enabling these objects, which were originally difficult to process uniformly, to be clearly identified, have their ownership confirmed, and be further incorporated into the collaboration and transaction system. When NFTs are combined with SBTs, the former are more suitable for carrying the ownership of unique digital assets, while the latter are more suitable for carrying the identity and reputation of agents. Together, they constitute the foundational structure for asset rights confirmation and identity recognition in the Agent Economy.

III. Deconstructing On-chain Financial Infrastructure

CHAP. 03

(1) Reshaping the Monetary Form

The token model is a structured arrangement for different rights relationships in the Agent Economy. Once the rights structure is re-divided and written on-chain, on-chain financial infrastructure must also be adjusted accordingly. What the Three-Token Model drives is not only a change in value expression, but also a further reshaping of on-chain financial infrastructure. Below, we deconstruct this new infrastructure from four aspects: monetary form, bookkeeping method, account structure, and clearing structure.

From a political economy perspective, a society's productive capacity defines the physical and technological boundaries of monetary circulation, while its relations of production establish the trust consensus and power dynamics inherent to the currency. The essence of the evolution of monetary forms is humanity's continuous effort to reduce transaction friction and adapt to larger-scale economic collaboration.

As economic activity moves from local to global, monetary forms have completed the leap from physical-attribute money (such as gold and silver) to legal-attribute money (such as fiat currency and electronic account records), greatly releasing liquidity. Today, the Agent Economy is triggering a new paradigm shift, posing a significant challenge to traditional centralized clearing and settlement systems.

In this context, digital currency, by virtue of its programmability and distributed ledger technology, is becoming the underlying financial infrastructure for restructuring new production relations. By implementing an atomized "transaction as settlement" mechanism, it significantly reduces trust costs and intermediary friction in large-scale cross-domain collaboration among machines. **The monetary forms and related characteristics of each stage are shown in Table 2 below.**

Table 2: A Comparative Analysis of Commodity, Fiat, and Algorithmic Money

Monetary Form	Commodity	Fiat	Algorithmic Money
Value Carrier Form	Shells, gold, etc.	RMB, USD, etc.	Bitcoin, CBDCs, tokenized assets, etc.
Value Anchor Point	Physical scarcity and intrinsic value	National sovereignty, legal order, and credit systems	Algorithmic rules, legal claims, reserve assets, and on-chain verification mechanisms
Anti-counterfeiting and Rights Confirmation Mechanism	Physical inspection: weighing, purity testing, and empirical identification	Institutional certification and authorization: anti-counterfeiting printing, KYC review, online banking passwords, and biometrics	Cryptographic verification: private key signatures and on-chain node consensus verification
Main Limitations	High carrying costs and risk of loss; low cross-regional circulation efficiency	Subject to judicial jurisdictions and institutional business hours; boundary and time friction	Interoperability and compliance need improvement; reliance on electricity and underlying network infrastructure

(2) Reshaping the Bookkeeping Method

The evolution of bookkeeping methods reconstructs the underlying trust mechanism. Looking back at history, human society's bookkeeping methods have undergone three milestone changes. First, single-entry bookkeeping originated in Mesopotamia, the Sumerian region between the Tigris and Euphrates rivers and one of the cradles of human civilization. Clay tablet ledgers from 3500 BC discovered by archaeologists are the earliest form of bookkeeping visible to humans to date. Second, double-entry bookkeeping emerged in the Italian region, driven by the demand for more complex accounting in the prosperous maritime trade along the Mediterranean coast. After hundreds of years of optimization, it remains in use today and has become the pillar of modern accounting. As human society fully entered the digital era, Bitcoin was born in 2009, marking the beginning of the third revolution in human bookkeeping history: the era of distributed bookkeeping. This innovation is reducing information friction and trust costs in economic collaboration in new ways. **To more clearly analyze the new ledger paradigm, we compare double-entry bookkeeping with distributed bookkeeping, as shown in Table 3 below:**

Table 3: Comparison of Double-entry Bookkeeping and Distributed Bookkeeping

Comparison Dimension	Double-entry Bookkeeping	Distributed Bookkeeping
Trust Foundation	Relies on public trust of centralized institutions	Relies on technical rules, including consensus mechanisms, encryption algorithms, and node consensus
Ledger Storage	Centralized storage	Distributed storage
Modification Permissions	Modified by authorized bookkeeping entities	Requires consensus among the majority of nodes; modification cost is extremely high
Applicable Scenarios	Single-entity or institution-led scenarios, such as internal corporate accounting, bank deposits and loans	Cross-subject collaboration scenarios such as cross-border payments, supply chain traceability, and digital currency
Efficiency and Cost	Relies on manual audit; process is relatively long	Automated execution via smart contracts; reduction of intermediary links

The smart economy has broken down national borders, but on a global scale, we cannot rely on a supra-sovereign institution to coordinate trust. Therefore, Distributed Ledger Technology (DLT), which replaces institutional trust with algorithmic trust, has emerged. The evolution of finance is never a zero-sum game. In the future ledger architecture, single-entry and double-entry bookkeeping will remain the solid foundation supporting micro-level and corporate operations, while distributed ledgers will be responsible for higher-level cross domain collaboration. New and old bookkeeping methods will not replace each other but will move toward integration and symbiosis.

(3) Reshaping the Account Structure

The account structure determines who ultimately holds and controls value. As monetary forms and bookkeeping technologies continue to evolve, account systems have also undergone a reshaping from "physical possession" to "institutional custody," and then to "cryptographic control." **The evolution of account systems is shown in Table 4 below.**

Table 4: Comparison of Different Account Structures

Account Structure	Physical Container	Database Entry	Cryptographic Address
Manifestation	Purse, safe	Bank account, brokerage account	Private key, wallet address
Asset Control Rights	Possession equals control	Third-party custody; account balance is recorded as a bookkeeping entry	Private-key control; algorithmic rights confirmation
Compliance Characteristics	Strong anonymity; recognizes the money rather than the person	Strong identity binding; recognizes the person rather than the money	Address is pseudonymous, but traceable and auditable
Transaction Verification and Authorization Mechanism	Physical verification	Passwords and biometrics	Asymmetric cryptographic signatures

The accounting system of traditional finance is essentially built around natural and legal people. Its operational basis lies in strict legal rights confirmation and KYC/AML review mechanisms. Under this system, machines or agents cannot directly hold and invoke accounts as independent subjects, and usually still need to be attached to a certain platform account to complete operations.

If this structure is simply followed, the problem will not disappear, but will only be transferred. On the one hand, once account credentials are exposed to automated programs, asset control risks will rise significantly; on the other hand, the high-frequency, continuous, and small-value automated transaction behaviors of machines are not necessarily compatible with the risk control logic of traditional bank account systems designed for human activities. More importantly, when program execution deviates or transaction behaviors trigger disputes, responsibility still falls back on the nominal account holder.

The Agent Economy needs a new type of account structure that differs from traditional real-name accounts. Cryptographic addresses based on public-private key systems provide this possibility. They decouple accounts from physical identities, enabling agents to have independent on-chain addresses and participate directly in payment, settlement, and collaboration processes. The technical paradigm of this account structure constitutes the trust cornerstone of the future smart economy.

(4) Reshaping the Clearing and Settlement Structure

Clearing and settlement systems determine how value is transferred between different subjects. Every upgrade in clearing and settlement technology has had a highly consistent core goal: to reduce the time, cost, and coordination friction required to complete a transaction, allowing funds and assets to be delivered faster and more securely.

Looking at financial history, clearing and settlement systems have also evolved alongside changes in monetary forms. Early local trade was usually based on "payment on delivery."

After entering the industrial era, the rise of cross-regional trade catalyzed a clearing and settlement system based on

multi-layered intermediary networks. Although transaction efficiency was significantly improved, it also brought problems such as delivery delays, counterparty risks, and multi-layered reconciliation costs. Today, in the digital era, with the help of distributed ledgers, smart contracts, and on-chain assets, clearing and settlement are shifting from a post-processing link to part of the transaction process itself. **The characteristics of the clearing and settlement structures of traditional financial infrastructure and on-chain financial infrastructure are shown in Table 5 below:**

Table 5: Comparison of Traditional Financial Infrastructure and On-chain Financial Infrastructure

On-chain Infrastructure	On-chain Infrastructure	On-chain Infrastructure
Settlement Mechanism	Multi-tier intermediary clearing and settlement	Transaction-as-settlement
Architectural Essence	Centralized registration and custody	Shared distributed ledger
Trust Mechanism	Institutional credit and authorization	Cryptography and consensus mechanisms
Risk Characteristics	Single-point failure risk	Decentralization reduces single-point risk, but new risks such as smart contract vulnerabilities become prominent
Service Coverage	Limited by bank accounts and physical branches	Loosely coupled account design; access possible via mobile phone

The reshaping of clearing and settlement structures is intended to meet the evolving needs of different economic activity. In the first two stages, there was an unavoidable time gap, T+N, between transaction and settlement. When "transaction-as-settlement" becomes a reality, borderless digital trade and high-frequency collaboration among agents will truly have a near-real-time, low-friction, and 24/7 value transmission mechanism.

IV. The New Business Paradigm of the Agent Economy

CHAP. 04

The ultimate significance of infrastructure lies in carrying value. While the dual-Token structure and on-chain clearing and settlement networks solve the channel problem, what truly brings commercial value is the comprehensive influx of Real World Assets (RWA). This is not only a migration of asset forms across physical and digital boundaries, but also a commercial revolution that restructures the global distribution of liquidity.

(1) Tokenization: Transforming Real-world Assets into Machine-readable Financial Code

In the Agent Economy, if assets in the physical world are not expressed through tokenization, it will be difficult for agents to identify and invoke them. The significance of tokenization lies in transforming asset rights that originally remained in local databases into digital forms that can be recorded, read, and executed on-chain. Only by completing this transformation can real-world assets truly enter the collaboration network of agents and become borderless "new property rights" with programmable capabilities, thereby fully releasing liquidity and truly integrating into the value closed loop of the smart economy.

In this process, two noteworthy changes are emerging in the market:

1. Compliance Architecture Becomes More Suitable for Agents

To allow agents to invoke real-world assets without friction, the primary prerequisite is to remove the obstacles of underlying rights confirmation. For a long time, traditional securities laws, such as those in the United States, usually required asset circulation to rely on licensed institutions, while legally recognized final records were often kept in off-chain ledgers.

This was also a common constraint faced by many early tokenized products: off-chain institutions still held approval authority, and on-chain tokens served only as information mappings. This meant that after an agent initiated a transaction on-chain, it still had to wait for synchronization and reconciliation with off-chain manual systems. For agents requiring high-frequency responses, the efficiency of this "digital shell, traditional clearing" model is significantly limited.

Precisely because of this, an important direction in market and regulatory practice in recent years has been to enhance the status of distributed ledgers in official registration and holder records. The core significance of legally establishing a single source of truth is that on-chain records are no longer merely subsidiary mappings, but have the potential to gradually become more authoritative carriers of rights. This breakthrough allows agents, under compliant conditions, to achieve millisecond-level on-chain execution in which "code is execution, and execution is delivery".

2. Gradual Convergence of Traditional Capital

Traditional capital is converging with the Agent Economy along a clear path. Initially, traditional capital mostly accessed the market indirectly through familiar channels, for example through ETFs and Digital Asset Treasury (DAT) strategies, to capture returns from digital assets and bring them into traditional income statements. Taking MicroStrategy's DAT strategy as an example, the company replaced a substantial portion of its cash holdings with Bitcoin, issued low-interest traditional corporate notes and additional shares, and bought more Bitcoin. This strategy drove its stock price up significantly, by more than 1000%, during Bitcoin's upward phase; however, during Bitcoin's downward cycle, the stock price also fell back.

This high-risk, high-volatility strategy is one of the more innovative examples of traditional finance's earlier positioning in on-chain finance.

As the market gradually matures, institutions have begun to shift from passive allocators to active suppliers. Asset management giants are directly entering the field and carrying out tokenization transformations of core interest-bearing assets in traditional finance, such as Treasuries and money market funds. This move can provide stable, standardized, and settleable-capable underlying assets for high-frequency collaboration among agents on-chain.

(2) Three Major Waves of Asset Reshaping

The comprehensive migration of real-world assets on-chain will not be achieved overnight, but follows a staged evolution from highly liquid assets to low-liquidity, non-standard assets. Over the past two years, a clear trend has been taking shape: on the one hand, digital-native crypto assets are moving from on-chain to off-chain, such as crypto asset spot ETFs being listed and traded on traditional stock exchanges; on the other hand, the digital representation of traditional financial assets is moving from off-chain to on-chain, such as tokenized fund products issued by leading international asset management institutions. The practice of asset tokenization can be traced back more than a decade:

Wave 1: Currency Tokenization

This phase was marked by the birth of the U.S. dollar stablecoin USDT. There are two core reasons why stablecoins were able to rise rapidly and become widely adopted. First, the crypto-finance ecosystem needed a relatively stable unit of value for trading, pricing, and settlement. Second, stablecoins combine the credit basis of fiat currency with the on-chain circulation efficiency brought by tokenization, allowing them to function as fiat-denominated settlement instruments while achieving greater transparency, efficiency, and programmability.

Wave 2: Traditional Financial Asset Tokenization

The core challenge in this phase focuses on how assets are brought on-chain, that is, how asset data and rights in the real world can be truly and accurately mapped to distributed ledgers, ensuring that on-chain tokens and off-chain asset status remain continuously synchronized. For example, a money market fund that originally operated through traditional custody, registration, and subscription/redemption systems can, after being tokenized, have its fund shares held and circulated in the form of on-chain tokens. Financial assets have become the pioneers of this stage because assets such as bonds and fund shares already possess relatively mature legal frameworks, regulatory requirements, and centralized registration and settlement systems, making them easier to express on-chain.

Wave 3: Physical and Alternative Asset Tokenization

Tokenization will enter more complex fields, involving real estate, commodities, artworks, and other assets. The difficulty in this phase lies in how to perform trusted mapping of physical assets. If an office building is split and tokenized, the problem is not only how to divide the revenue rights into several portions, but more importantly, how the on-chain system can continuously verify whether the building's title status, rental income, and operational changes are authentic. Precisely because of this, Decentralized Physical Infrastructure Networks (DePIN) are highly anticipated: by combining IoT, oracles, and blockchain technology, they may enable the status of physical assets to be dynamically perceived, continuously brought on-chain, and automatically managed, thereby providing foundational conditions for the larger-scale tokenization

of physical assets.

However, the current challenge for this model lies in how to ensure the authenticity of the source data collected by IoT devices, and the industry is still seeking better solutions.

(3) Paradigm Endgame: An Autonomous Smart Global Value Network

Following the formation of silicon-based labor, the reshaping of on-chain financial infrastructure, and the continuous tokenization of real-world assets, we will ultimately see a brand-new business paradigm gradually take shape. The future will no longer be based on "humans as the execution subjects, intermediaries as the organizational centers, and account systems as the circulation carriers," but will shift toward a global value network where execution is undertaken by agents, coordination is completed by on-chain rules, and value is carried by tokenized assets.

Humans remain the ultimate owners of assets, the setters of risk preferences, and the definers of institutional boundaries. What truly changes is the execution logic of business activities. In the past, asset allocation, transaction execution, clearing and settlement, risk control monitoring, and revenue distribution relied on a large number of institutional intermediaries, manual processes, and layered account systems. In the future, these links will increasingly be executed automatically by agents in an on-chain environment. An investor only needs to preset ranges and rules, and the subsequent process can be automatically executed by a workflow formed by multiple agents: one responsible for collecting market data, another for filtering investable assets, a third for generating portfolio adjustment plans, and a fourth for completing on-chain transactions and settlement. Humans are responsible for setting goals and boundaries, while machines are responsible for continuous collaboration according to rules.

The core of this paradigm lies in the combination of programmable labor and programmable assets. In the future, the boundaries of business will no longer be determined by geography, institutions, time zones, and business hours, but will instead be shaped by access rules, on-chain status, and machine collaboration capabilities. The most competitive business systems will not necessarily be those with the most employees, the most branches, or the most intermediary channels, but are more likely to be those capable of embedding agents, assets, and rules within the same network.

This is precisely the endgame picture of the new business paradigm of the Agent Economy: humans retain ultimate sovereignty, agents undertake the main execution functions, and on-chain finance provides the business operating system for the era of autonomous intelligence. When value creation, value circulation, and value execution are unified in the same global network for the first time, commercial civilization will also enter a new stage, moving from manual finance relying on intermediaries toward an autonomous intelligence-driven global value network.

V. Disclaimer

CHAP. 05

This whitepaper is published by HashKey RWA for general information, industry research, and discussion and exchange purposes only.

This whitepaper does not constitute, nor should it be interpreted as, any form of investment advice, legal opinion, tax opinion, accounting opinion, or other professional advice, nor does it constitute an offer, solicitation, invitation, recommendation, or commitment regarding any securities, tokens, fund shares, financial products, digital assets, or investment strategies. Readers should not rely solely on this whitepaper to make any investment, transaction, issuance, sale, technical deployment, or compliance decisions. Readers intending to carry out relevant activities should independently seek legal, regulatory, tax, accounting, and professional advice.

The views, analyses, and judgments contained in this whitepaper reflect opinions only as of the date of publication and may be adjusted without further notice according to changes in the market environment, regulatory policies, technological developments, or other factors. Any forward-looking statements, trend judgments, scenario assumptions, or case illustrations mentioned herein are for illustration and discussion purposes only and should not be regarded as a guarantee of future results or market performance.

The blockchain, tokenization, on-chain finance, agents, real-world assets (RWA), and related mechanisms discussed in this whitepaper are still in a stage of rapid development and may involve complex and constantly changing legal and regulatory issues. There may be significant differences in the legal characterization and regulatory requirements for tokens, digital assets, smart contracts, security attributes, payment arrangements, and related activities across different jurisdictions.

Specifically, any token structure, revenue arrangement, or rights arrangement described in this whitepaper may, under different jurisdictions, be identified as securities, collective investment schemes, or other regulated financial products, and might therefore trigger applicable legal and regulatory obligations. The content of this whitepaper does not constitute design advice, issuance arrangements, or compliance guarantees for any specific product, token, project, or legal structure.

Furthermore, the agents or automated systems mentioned in this whitepaper do not naturally constitute independent legal subjects; their related behaviors and legal liabilities usually still need to be attributed to the natural or legal person subjects behind them. The automatic operation of smart contracts or on-chain execution performance does not naturally equate to the formation of a contract, effective fulfillment, or final settlement in a legal sense.

To the maximum extent permitted by applicable law, HashKey RWA and its related affiliated entities, directors, senior management, employees, or consultants shall not be held liable for any direct or indirect losses incurred by any person due to the use of or reliance on the whole or any part of the content of this whitepaper.



2026 Web3 Festival Whitepaper

On-chain Finance and Tokenization in the Era of the Agent Economy

By HashKey Group