Gate Research × Alchemy Pay

The New Era of Stablecoins

A Comprehensive Study on Compliance, Innovation, and Adoption

Abstract

- **Explosive Growth of the Stablecoin Market:** As of August 2025, the global stablecoin market capitalization has surpassed $280 billion, representing a more than 660-fold increase since early 2019. On-chain annual settlement volumes have exceeded $30 trillion, placing stablecoins on par with SWIFT and Visa in transaction capacity. This surge has been driven by both regulatory momentum and the entry of major enterprises.

- **Regulatory Acceleration and Compliance:** The full implementation of the GENIUS Act, the Stablecoin Ordinance, and the MiCA framework, alongside diverse regulatory regimes in other jurisdictions, marks the beginning of the "Age of Compliance." Stablecoins are moving toward institutionalization and mainstream adoption.

- **Corporate Giants Enter the Arena:** Traditional financial leaders such as PayPal, Visa, and Mastercard are actively integrating stablecoins into cross-border, retail, and enterprise payment systems, building multi-asset compatible payment networks.

- **Market Structure and Emerging Forces:** While USDT and USDC remain dominant, USDC is more widely used in payments and settlements. Meanwhile, innovative yield-bearing stablecoins such as USDe (by Ethena Labs) are rising quickly, capturing significant market share in a short period.

- **The "Three-in-One" Model:** Stablecoins are evolving from a single-use payment tool into a "Peg + Yield + Application" model. On the payment side, cross-border, enterprise, and retail use cases are expanding; on the yield side, yield-bearing and RWA-backed stablecoins are becoming key portfolio tools; on the application side, stablecoins are penetrating supply chain finance, payroll, and capital market collateralization, extending on-chain finance into the real economy.

- **Infrastructure Competition Intensifies:** The stablecoin race has shifted from "token competition" to "infrastructure competition." Key players including Tether, Circle, Stripe, Alchemy Pay, and Converge are building proprietary blockchains to capture control over payment settlement "highways."

- **Future Pathways:** Technologically, stablecoins will achieve cross-chain settlement and multi-chain compatibility; in markets, they will operate in parallel with traditional payment networks and enter capital markets through RWAs; institutionally, they will coexist with CBDCs under regulatory frameworks. Stablecoins are transitioning from explosive growth to compliance establishment, from token competition to infrastructure competition, and from U.S. dollar dominance to regional multipolarity. Over the next 3–5 years, those who first build a closed loop across compliance, infrastructure, and application ecosystems may define the next generation of the global value network.

Keywords: Gate Research, Stablecoins, USDT, Alchemy Chain

Gate Research: The New Era of Stablecoins: A Comprehensive Study on Compliance, Innovation, and Adoption

1. Introduction

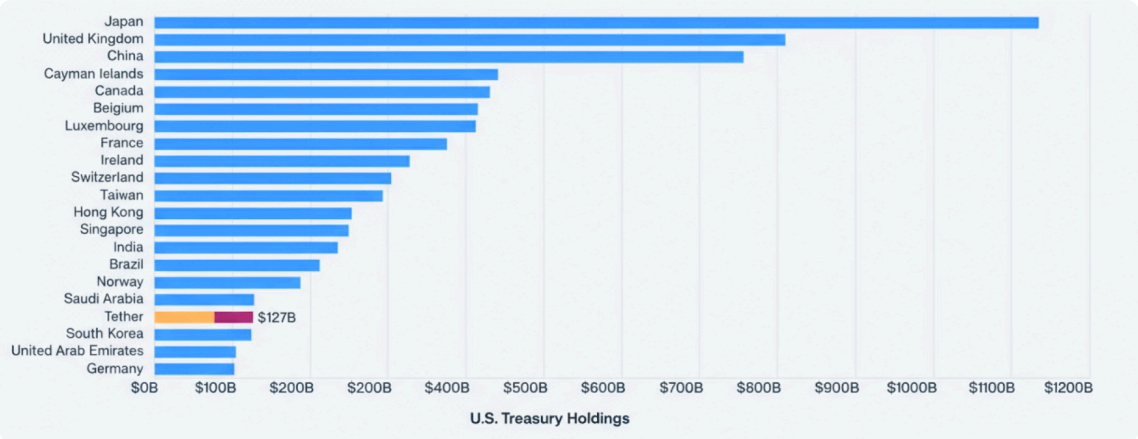
Stablecoins, once a peripheral medium of exchange within the crypto world, have now become a vital bridge connecting traditional finance and digital assets. As of the end of August 2025, the global stablecoin market capitalization has surpassed $280 billion, with annualized on-chain settlement volumes exceeding $30 trillion—a scale comparable to mainstream financial networks such as SWIFT and Visa.

The rise of stablecoins stems from their unique positioning: by being pegged to fiat currencies or highly liquid assets, they provide a safe haven and liquidity support in volatile crypto markets, gradually becoming core assets for DeFi, exchanges, and on-chain payments. The first stablecoin, Tether (USDT), launched in 2014 with its "1 USDT = 1 USD reserve" model, pioneered this new era. Since then, a wide range of models—including fiat-backed, crypto-collateralized, algorithmic, and yield-bearing stablecoins—have emerged, continuously expanding their applications in global finance.

However, the rapid ascent of stablecoins is not merely the result of technological progress, but also of policy developments and structural shifts in markets:

- **Regulatory implementation**: The *GENIUS Act* established the first federal framework for U.S. dollar stablecoins; the *Stablecoin Bill* became the world's first regional regulatory framework; meanwhile, major Asian economies are accelerating approvals for compliant issuers of local-currency stablecoins.
- **Capital and enterprise adoption boom**: Stripe entered the sector by acquiring stablecoin infrastructure firm Bridge; Circle's stock price surged sevenfold post-IPO; Tether became one of the top 20 holders of U.S. Treasuries, surpassing several sovereign nations in scale.

Figure 1: Top Holders of U.S. Treasuries



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- **Mainstream fintech entry**: PayPal (*PYUSD*), Visa, and Mastercard launched stablecoin settlement and payment pilots, driving adoption beyond crypto-native use cases into global payment terminals.

In short, stablecoins are at a historic dual inflection point: a *"regulatory window"* and an *"industrial expansion phase."* They are evolving from gray-area liquidity tools into compliant, innovative pillars of global financial infrastructure. Against this backdrop, this report systematically examines the evolution of stablecoins in the new era, focusing on four major themes:

1. **Market Landscape** – Analyzing growth in market cap, transaction volumes, and regional adoption (Asia, U.S./Europe, Latin America), along with strategic moves by PayPal, Visa, and other financial giants.
2. **Compliance Trajectory** – Mapping global regulatory frameworks and divergent paths, and exploring how these shape mainstream adoption.
3. **Technology & Model Innovation** – A panoramic review of stablecoin infrastructure and application-layer innovation across emerging segments.
4. **Global Adoption & Application Outlook** – Forward-looking analysis of technical trends and development pathways, highlighting how stablecoins expand from trading instruments to broader financial services and real-world integration.

We believe 2025 marks a pivotal turning point for stablecoins. They are no longer just safe-haven assets for crypto markets, but are moving to the forefront of global payments, cross-border trade, fintech, and sovereign credit systems. In the coming years, stablecoins are poised to become a starting point for the restructuring of the digital financial order. Their trajectory will not only shape the future of the crypto industry but also influence the evolution of the global monetary system. Under this regulatory window, stablecoins will accelerate their compliance and institutionalization, ushering in a new era of large-scale adoption.

2. The Macroeconomic Landscape of the Stablecoin Market

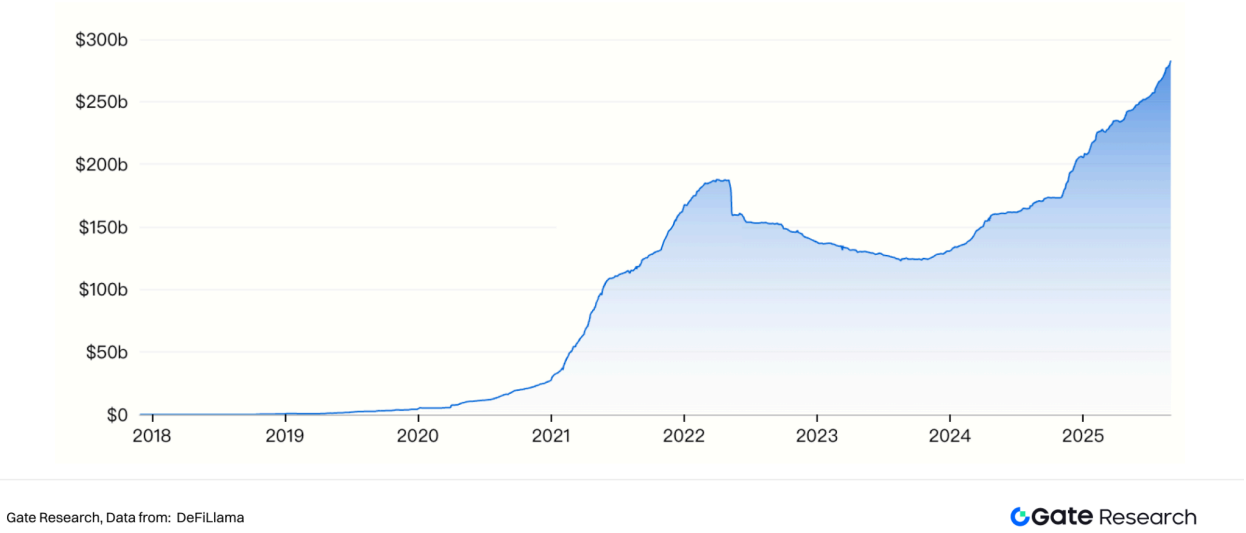
Entering 2025, the stablecoin market is no longer a subsidiary of the crypto economy but has evolved into an independent layer of financial infrastructure with systemic importance. Its market size, user base, and institutional participation have all reached unprecedented levels, signaling a rapid transition from being "crypto-native" to becoming "globally mainstream."

2.1 Market Overview and Data: The Foundation of a Trillion-Dollar Track Has Taken Shape

As of August 2025, stablecoins have become one of the fastest-growing and most critical sectors within the crypto ecosystem. In just six years, their total market capitalization surged

more than 660x, from $418 million in early 2019 to over $280 billion, accounting for roughly 7% of the total crypto market cap. This explosive growth is reflected not only in market value but also in the widespread adoption of stablecoins as “on-chain dollars.”

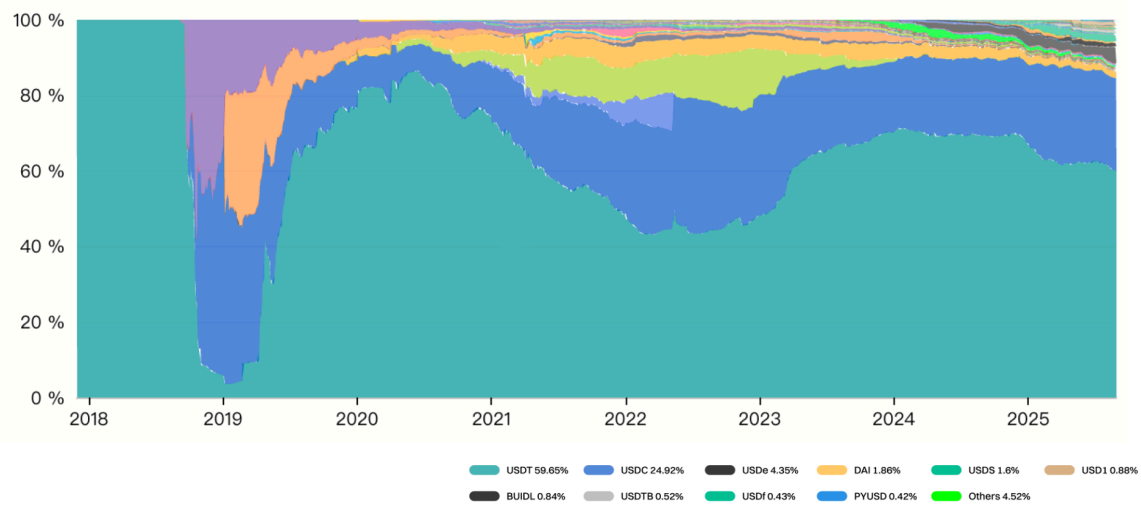
Figure 2: Total Market Capitalization of Stablecoins



USDT and USDC still dominate the market, with a combined share exceeding 84%. However, the competitive landscape is subtly shifting. USDC’s market cap doubled within a year to $70 billion, driven by MiCA and DIFC regulatory approvals, strategic partnerships with companies like Stripe and MoneyGram, and rapid global expansion. Meanwhile, although USDT’s total market cap surpassed $168 billion, its overall market share has declined, with its focus shifting toward the P2P remittance market to consolidate its position in global payments.

Decentralized stablecoins are also on the rise. Ethena Labs’ USDe skyrocketed to $12.28 billion in less than two years, becoming the third-largest stablecoin, thanks to its innovative yield strategies and delta-neutral hedging mechanism. MakerDAO, through its rebranding, launched the compliance-friendly USDS, which has reached a market cap of $4.529 billion, strengthening its competitiveness in the decentralized stablecoin sector.

Figure 3: Market Share of Different Stablecoins



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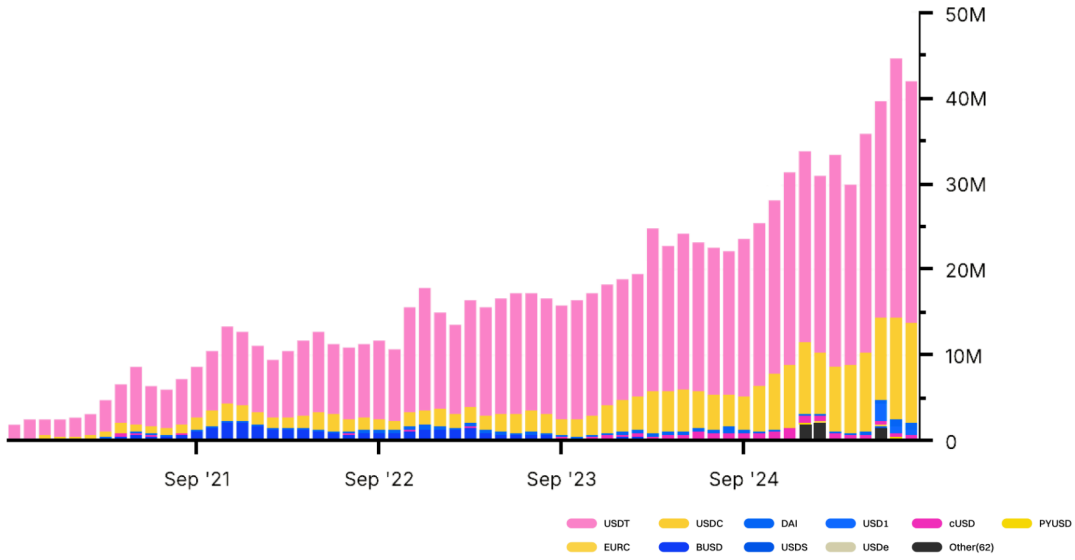
Market activity is climbing alongside overall scale. Monthly active addresses for stablecoins have exceeded 42 million, nearly triple the number from 2023. On-chain monthly transactions have surpassed 1.1 billion, with the user base expanding from professional traders to everyday payment users—an indication that stablecoin networks have matured into a truly global payment system.

Figure 4: Monthly Active Addresses of Stablecoins



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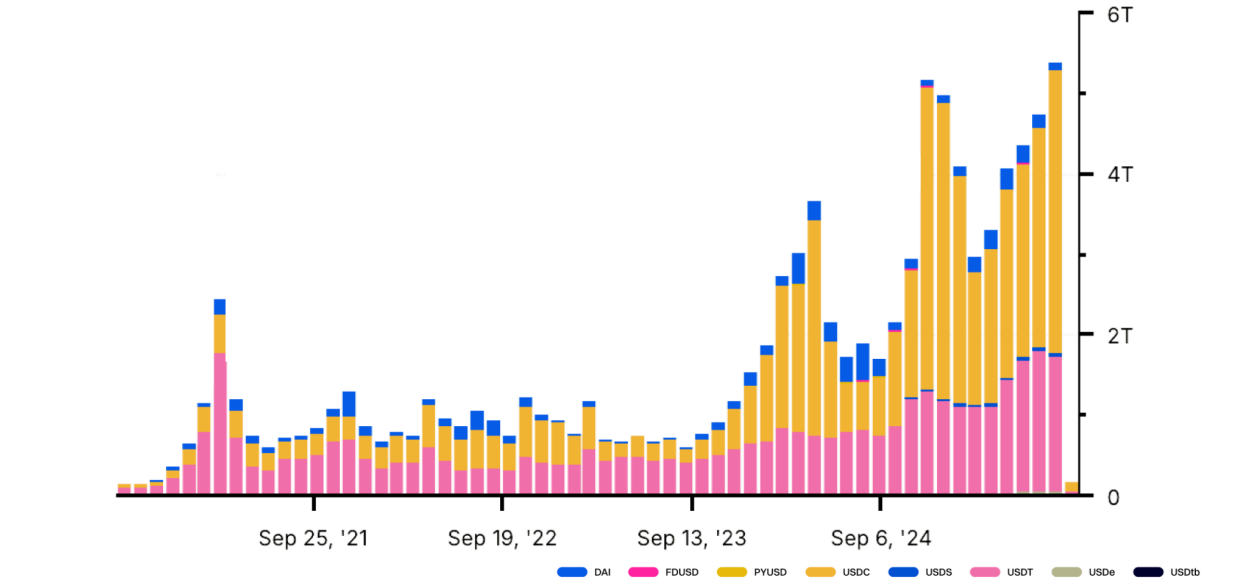
The efficiency of stablecoins as value-transfer networks is remarkable. Annualized on-chain settlement volumes rose from around $10 trillion in 2023 to $30.9 trillion in 2024. By the end of August 2025, total settlement volume for the year had already reached nearly $34.1 trillion—exceeding the entirety of 2024—putting the full-year outlook on track to break the $50 trillion threshold, with growth momentum continuing to accelerate. Notably, despite USDC's smaller market cap compared to USDT, it accounts for a larger share of on-chain activity (64.8% vs. 31.4%), indicating its greater use in high-frequency, large-value payments and settlements.

Figure 5: Monthly Trading Volume of Stablecoins



Gate Research, Data from: Artemis

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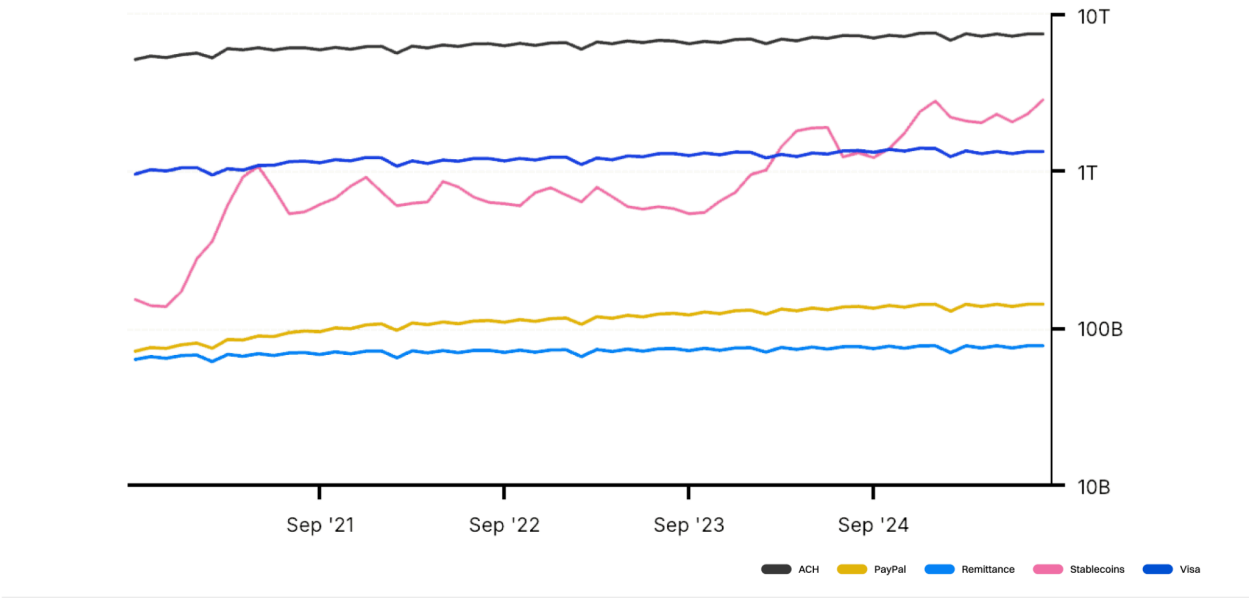
According to Artemis's adjusted transaction volume data (30-day rolling average, excluding MEV activity and centralized exchange internal settlements), stablecoin settlement volumes have already far surpassed PayPal, and since 2024, frequently outpaced Visa. At present, they rank as the world's second-largest payment system after traditional ACH (Automated Clearing House). A new era's foundational payment infrastructure has already taken shape.

Figure 6: Stablecoin Trading Volume vs. Other Financial Systems



Gate Research, Data from: Artemis

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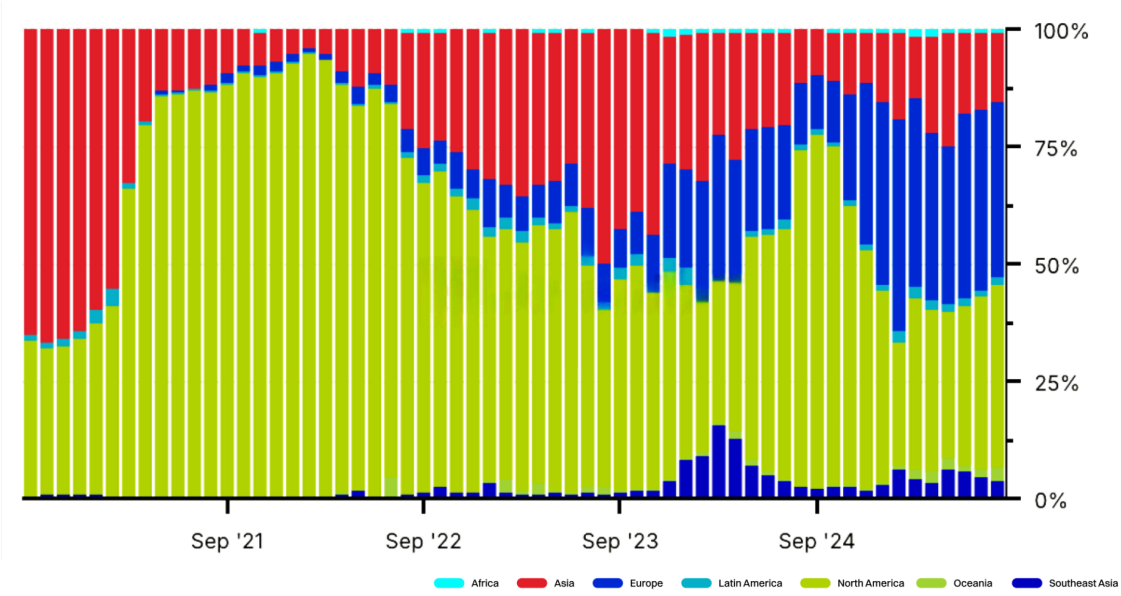
Meanwhile, stablecoin adoption is spreading globally, with transaction patterns shifting from being heavily North America-centric to forming a more diversified, multi-polar global network:

- **North America**: Once holding over 90% market share, North America's share has fallen to 39%. While it remains a critical hub for crypto innovation, the rise of other regions has diluted its dominance.
- **Europe**: Fueled by regulatory clarity from MiCA, Europe's share has surged to 37.4%, nearly matching North America, positioning it as another key hub for institutional adoption.
- **Southeast Asia and Latin America**: These two regions are the fastest-growing markets, where stablecoins are widely used for cross-border trade settlement, personal remittances, and as hedges against local currency inflation. Real-world utility is driving adoption.
- **Other parts of Asia and Africa**: Though still relatively small in share, these regions are seeing steady growth, underscoring the vast potential of stablecoins in financial inclusion and addressing local financial challenges.

Figure 7: Regional Share of Stablecoin Transactions



Gate Research, Data from: Artemis

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2.2 The “Stablecoin Moment” for Traditional Finance

The period from 2024 to 2025 marks the turning point when traditional financial and technology giants shifted from cautious observation to fully embracing stablecoins. Their entry not only brings vast user bases and strong brand credibility but also fundamentally reshapes the mainstream narrative around stablecoins.

Mastercard: Reshaping the Foundations of the Payment Network

Mastercard’s core strategy is not to issue its own stablecoin but to upgrade its global payment network into a multi-chain, multi-asset “value network.” Partnering with blockchain infrastructure leader Chainlink, Mastercard has enabled a direct pathway from card payments to on-chain asset purchases, allowing 3.5 billion Mastercard credit card users to buy crypto tokens directly on decentralized exchanges (DEXs).

In collaboration with Fiserv, Mastercard is also integrating stablecoins such as FIUSD into its global payment network, even allowing merchants to choose settlement in stablecoins. This innovation grants merchants unprecedented flexibility and significantly boosts cross-border payment efficiency. Additionally, partnerships with platforms such as MoonPay and MetaMask allow users to spend stablecoins in their wallets directly for online and offline purchases, embedding Web3 assets seamlessly into everyday life.

PayPal: The Retail Payments Breakthrough

PayPal aims to position PYUSD as the foundational value layer within its global payments ecosystem, reducing cross-border transaction costs while exploring new Web3 business models. By deeply integrating PYUSD into PayPal, Venmo, and Xoom, the company enables seamless buying, sending, and exchanging of stablecoins.

In Q1 2025, PayPal, in partnership with Ernst & Young, completed its first cross-border corporate payroll settlement using PYUSD, validating its feasibility in B2B use cases.

Other Major Players

- **Visa** launched its “Global Stablecoin Settlement (GSC)” service, enabling its banking partners to settle cross-border USDC payments directly on public blockchains.
- **Stripe** acquired stablecoin payments company Bridge and partnered with Paxos to support stablecoin payments, accelerating its expansion into digital finance.
- **JD.com and Ant Group** are actively applying for stablecoin issuance licenses in Hong Kong and Singapore, leveraging their dominance in e-commerce and payments to streamline cross-border transactions.
- **Meta** is exploring the integration of USDC and other major stablecoins into its social platforms, enabling transfers and tipping as easily as sending a message—pushing adoption in social contexts with a pragmatic approach.

An increasing number of traditional financial and technology giants are accelerating their entry into stablecoins, whether by issuing their own, acquiring blockchain payment companies, or partnering with crypto-native firms. These cases highlight that traditional finance now views stablecoins as a critical tool for upgrading their payment systems. The era of institutionalization and mainstreaming of stablecoins is fully underway.

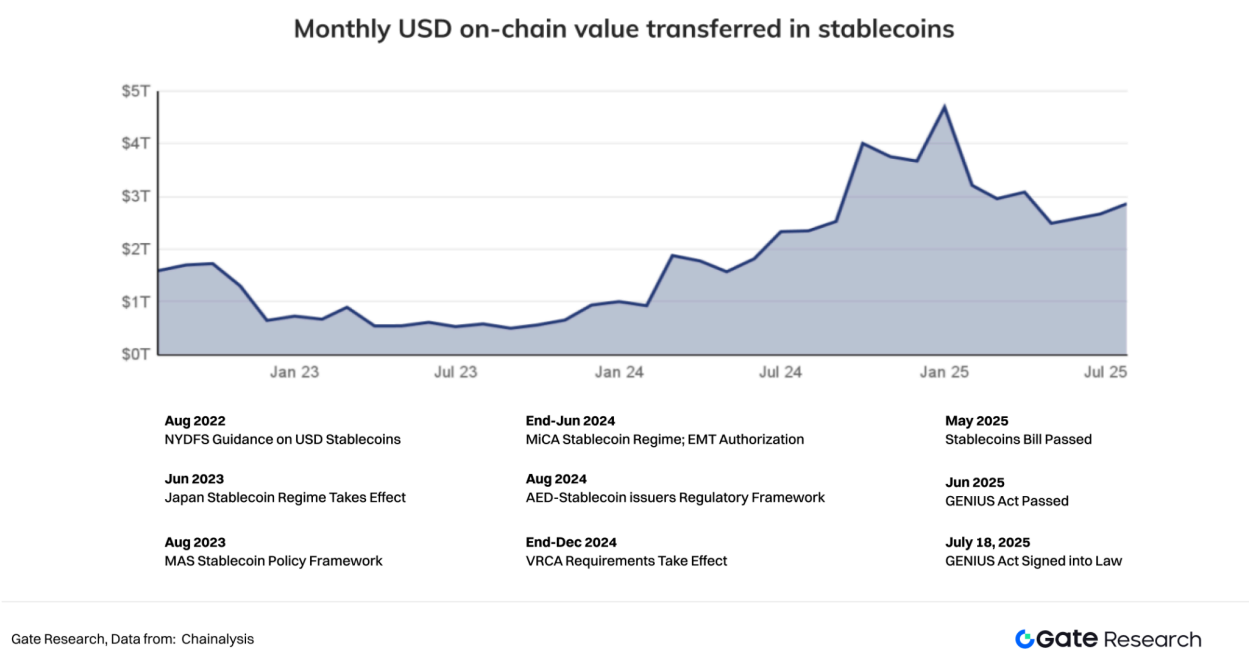
3. Global Regulatory Outlook and Compliance Pathways: The “Age of Exploration”

As the systemic importance of stablecoins grows, regulators worldwide have shifted from cautious observation to actively building clear, robust frameworks. By 2025, a global regulatory landscape for stablecoins is taking shape, balancing risk management with innovation. “Compliance” is no longer optional—it is the mandatory pathway to mass adoption.

3.1 Regulatory Roadmaps Across Major Economies

The global regulatory framework for stablecoins is rapidly crystallizing. From 2022 to 2025, the path has evolved from pilot programs to structured regimes. The concentrated rollout in 2024–2025 marks the beginning of the industry’s “Age of Exploration”—a new era of well-defined rules and clear navigation channels.

Figure 8: Global Stablecoin Regulatory Developments (2022–2025)



2022–2023: Pioneer Phase. The first wave of regulatory frameworks established the legal definition of stablecoins, clarified the scope of issuers, set reserve requirements, and codified consumer protection and AML obligations. Policies at this stage were largely “pilot + limited scope,” signaling compliance while gathering experience for larger-scale application.

2024–2025: Acceleration Phase. From 2024 onward, stablecoin regulation entered a phase of concentrated formation. On one hand, generalized frameworks were launched in multiple financial hubs, providing the foundation for cross-border interoperability. On the other hand, payment-focused legislation was widely adopted, covering issuer licensing, reserve segregation, audit and disclosure requirements, and redemption mechanisms. By mid-2025, the regulatory landscape had shifted from a “vacuum” to an “exploration era,” with clear compliance pathways established.

3.2 Four Core Global Regulatory Pathways

While global consensus has formed around key requirements—1:1 high-quality reserves, mandatory redemption rights, and transparent audits—major economies have not adopted a uniform regulatory paradigm. Instead, based on financial maturity, strategic priorities, and innovation cultures, four distinct regulatory approaches have emerged.

Figure 9: Four Core Regulatory Pathways for Global Stablecoins

Pathway	Strategic Positioning	Core Features	Example	Key Points
Path 1: Dual-Track & Market Competition	National legislation sets regulatory baseline while retaining local flexibility; "unified standards + market competition"	- Dual licensing (federal + state)- Both banks & fintech firms allowed- Strong consumer protection (segregated reserves, redemption rights, bankruptcy priority)	GENIUS Act (2025)	- Pegged 1:1 to USD- Issuers can be banks or qualified non-bank financial institutions- 100% cash or U.S. Treasuries reserves- Reserves held at regulated custodians- Investors entitled to face-value redemption
Path 2: Unified Market Access & High-Standard Regulation	Applied to multi-country economic unions, creating a unified compliance market with "passporting"	- Unified legislation (regional coverage)- Only banks or EMIs may issue- "Significant" stablecoins face stricter capital & governance rules	Markets in Crypto-Assets Regulation (MiCA)	- EMT (E-Money Tokens) classification- Issuers must be banks or EMIs- Significant tokens face higher capital/governance thresholds
Path 3: Sandbox & Use-Case Driven	Financial hubs adopt progressive regulation, piloting sandboxes tied to real-economy applications	- Sandbox-first approach- Focus on cross-border trade & supply chains- Transition from sandbox to full licensing	Stablecoin Ordinance (2025)	- Local registration required- Minimum HKD 25m paid-up capital- 1:1 high-quality reserves- Strict AML/CTF compliance- Regulator has investigative & revocation powers
Path 4: Institution-Led & Domestic Currency Priority	Strong-currency economies restrict issuance to licensed institutions, prioritizing local-currency stablecoins	- Strict issuer limits (banks/trusts)- 100% domestic currency reserves- Preference for local-currency stablecoins	Payment Services Act	- Only banks/trusts/Money Transfer Operators may issue- 100% fiat cash reserves- Custody with trust banks- Strict AML/CFT obligations

3.2.1 Path One: "Dual-Track System" and Market Competition Model

As a payment infrastructure, transaction fees represent PayFi's most fundamental and intuitive

Strategic Positioning: This model aims to establish a federal-level regulatory baseline while preserving flexibility for state-level regulators to encourage financial innovation. The result is a system where strict national oversight coexists with local experimentation, fostering dynamic competition between market participants and regulators.

Core Features

- **Dual Licensing**: Stablecoin issuers can either obtain state-level licenses or apply for a federal special-purpose payment charter.
- **Diverse Issuers**: Both licensed banks and qualified non-bank fintech firms are explicitly permitted to issue stablecoins, designed to stimulate market vitality.
- **Comprehensive Consumer Protection**: Federal legislation typically mandates reserve segregation, statutory redemption rights, and customer priority claims in case of issuer bankruptcy.

Case Study: The GENIUS Act (2025)

Signed into law in 2025, the GENIUS Act sets standards for payment stablecoins. Its key provisions include:

- **Definition and Scope**: Payment stablecoins must be pegged 1:1 to the U.S. dollar and fully backed by cash or short-term Treasuries.
- **Issuer Licensing**: Eligible issuers include banks and qualified non-bank financial institutions, subject to capital, risk management, and executive fitness requirements.
- **Reserve Requirements**: Assets must be held in regulated custody, segregated, and prohibited from high-risk investments.
- **Redemption Rights**: Holders enjoy par-value redemption, with issuers required to establish liquidity emergency mechanisms.
- **Consumer Protection**: Explicit bankruptcy isolation, customer priority claims, and strengthened AML/KYC obligations.

3.2.2 Path Two: "Unified Market Access" and High-Standard Regulatory Model

Strategic Positioning: Common in large economic unions composed of multiple nations, this model seeks to create the world's most comprehensive, high-standard unified crypto-asset market. Through a "passporting" regime—"licensed in one, valid across all"—it attracts top-tier global institutions while mitigating systemic risks.

Core Features

- **Unified Legislation**: A single, comprehensive regulatory act defining and classifying stablecoins.
- **Strict Issuer Requirements**: Typically limited to licensed banks or electronic money institutions (EMIs) under stringent oversight.
- **"Significance" Thresholds**: Stablecoins with large circulation or transaction volumes face heightened capital and governance requirements.

Case Study: Markets in Crypto-Assets Regulation (MiCA)

- **Legal Definition**: MiCA, which came into force in late 2024, defines fiat-backed stablecoins as "Electronic Money Tokens" (EMTs).
- **Eligible Issuers**: Only banks or EMIs are allowed, subject to the same rules as traditional e-money.
- **Significant Tokens**: Large-scale stablecoins must comply with stricter capital, liquidity, and governance standards.

3.2.3 Path Three: "Sandbox-Led" and Use-Case-Driven Model

Legislative Background: On May 21, 2025, Hong Kong's Legislative Council passed the Stablecoin Ordinance, effective in August, establishing a comprehensive regulatory framework to preserve financial stability and strengthen its position as an international financial hub.

Strategic Positioning: This model is typical of international financial centers aiming to become global or regional hubs for digital assets. Its regulatory approach is pragmatic, incremental, and heavily focused on integration with the real economy.

Core Features

- **Sandbox First**: Qualified institutions can test stablecoin issuance and applications in a controlled environment, with regulators collecting data and co-developing best practices.
- **Scenario Orientation**: Strong emphasis on real-economy use cases such as cross-border trade and supply chain finance.
- **Transition to Licensing**: Once proven in sandbox trials, projects transition to a full licensing regime.

Case Study: The Stablecoin Ordinance (2025)

- Issuers must be locally incorporated and meet financial soundness criteria (HKD 25 million minimum paid-up capital, 1:1 high-quality reserves).
- Mandatory compliance with AML/CFT standards.
- The Hong Kong Monetary Authority (HKMA) holds investigative, sanctioning, suspension, and license revocation powers, with penalties including fines and imprisonment for violations.

3.2.4 Path Four: "Financial Institution-Led" and Domestic Currency-First Model

Strategic Positioning: This model is common in economies with mature financial systems and strong sovereign currencies. The core goal is to keep stablecoin issuance and operations firmly under the control of regulated financial institutions while prioritizing domestic currency-backed stablecoins.

Core Features

- **Strict Issuer Restrictions**: Only banks, money transfer firms, or trust companies are authorized to issue stablecoins.
- **Conservative Reserve Rules**: Reserves must consist of 100% domestic currency cash deposits.
- **Domestic Currency Priority**: Both policy and practice favor stablecoins pegged to the sovereign currency.

Case Study: The Payment Services Act

- **Issuer Requirements**: Restricted to banks, money transfer firms, or trust companies to ensure regulatory credibility.
- **Reserve Assets**: 100% fiat reserves, custodied in trust banks, ensuring par-value redemption at any time.
- **Compliance Obligations**: Issuers must adhere strictly to AML and CFT rules to prevent illicit flows.

3.3 The Impact of Regulation on Industry Structure

The gradual rollout of global regulatory frameworks marks the industry's path to maturity, bringing three irreversible structural changes:

Market Stratification and Specialization: Market structure will bifurcate: compliant stablecoins such as USDC and PYUSD will dominate institutional flows and mainstream payment adoption, while decentralized stablecoins like DAI will remain central to permissionless DeFi ecosystems.

Unlocking Institutional Capital: Clear regulatory pathways open the door for institutional investors. Pension funds, insurers, and other large allocators depend heavily on legal certainty, making compliant stablecoins the secure "entry point" for trillions in institutional capital.

Catalyzing a New Wave of Innovation: Regulatory clarity will fuel explosive growth in application-layer innovation. PayFi models, on-chain FX, and compliant yield products are poised to flourish under well-defined rules.

4. Panorama of the Stablecoin Sector and Emerging Models

Driven by tightening regulation and accelerating institutional adoption, the stablecoin sector is undergoing profound technological and model innovation. From simple fiat-collateralized models to diversified asset portfolios and yield mechanisms, stablecoins are evolving from a mere payment tool into programmable, composable "financial Lego bricks."

4.1 Stablecoin Evolution and Classification

4.1.1 Evolution Path of Stablecoins

The development of stablecoins has gone through multiple stages, evolving from simple USD pegs to incorporating yield and real-world applications.

Phase 1 (2014–2018): Fiat-collateralized dominance. The era began with fiat-custodied stablecoins, represented by Tether (USDT). Backed 1:1 by USD reserves, these tokens

emphasized price stability and liquidity, primarily serving centralized exchanges (CEXs). USDT quickly dominated, becoming a reliable trading medium and liquidity foundation for the crypto market.

Phase 2 (2018–2021): Crypto-collateralized and hybrid models. With MakerDAO's Dai (DAI), crypto-backed and partially decentralized stablecoins emerged. At the same time, fiat-backed stablecoins such as USDC and TUSD began prioritizing transparency and audits to strengthen trust. Facebook's proposed Libra/Diem (though abandoned) brought stablecoins to global regulatory attention, signaling their expansion into mainstream financial discourse.

Phase 3 (2021–2023): Rise and collapse of algorithmic stablecoins. Algorithmic models like TerraUSD (UST) surged briefly, but its collapse exposed systemic vulnerabilities. With the "death spiral," the market shifted focus back to transparency, risk management, and safety. Meanwhile, stablecoins became integral as a unit of account in DeFi and institutional digital asset activities.

Phase 4 (2023–present): Yield-bearing and RWA-backed stablecoins. Beyond price stability, users began seeking inflation-hedging returns. Stablecoins now integrate DeFi yield mechanisms and RWA collateral (e.g., U.S. Treasuries), embedding themselves into mainstream finance for cross-border payments, settlement, and treasury management. The model is evolving toward "peg + yield + application", becoming a crucial bridge between digital and real-world assets.

Overall, stablecoins have shifted from simple price stability → decentralization/transparency → post-crisis risk reassessment → yield generation and financial integration. Early fiat-backed models laid the foundation, while today's stablecoins aim to unify peg stability, yield, and real-world use cases.

4.1.2 Stablecoin Types and Representative Projects

Stablecoins now fall into several major categories, each with distinct design logic, use cases, strengths, and limitations:

Figure 10: Major Types of Stablecoins

Type	Core Mechanism	Advantages	Limitations	Representative Projects
Fiat/Financial Asset-Backed	1:1 fiat or high-liquidity financial assets (e.g., U.S. Treasuries, bills) held by centralized custodians	Strong price stability, clear redemption rights; suitable for payments & settlements	High centralization, subject to audit transparency & regulatory pressure	USDT（Tether）、USDC（Circle）、FDUSD（First Digital Labs）、USD1（World Liberty Financial）
Crypto-Collateralized	Users lock ETH, BTC, etc. as collateral, mint stablecoins via over-collateralization	Fully on-chain, decentralized, transparent, censorship-resistant	Low capital efficiency, market volatility risk, liquidation risk	DAI / USDS（MakerDAO → Sky Protocol）
Algorithmic (Partial/Non-Collateralized)	Adjusts token supply algorithmically (mint when price rises, burn when price falls)	Highly decentralized, capital-efficient	No reserve backing, prone to "death spiral," low trust	UST（TerraUSD）、Frax V3
Real-World Asset (RWA)-Backed	Backed by gold, oil, real estate, etc.	Diversified value anchor, useful as inflation hedge	Reserve verification complex, limited liquidity, narrow use cases	PAXG（Paxos Gold）、XAUT（Tether Gold）
Yield-Bearing	Reserves invested in U.S. Treasuries or on-chain lending; token itself accrues yield	"Hold-to-earn," capital efficiency, low-risk yield	Potentially classified as securities, yield depends on underlying assets	USDe / sUSDe（Ethena）、sUSDS（Sky Protocol）、USDY（Ondo Finance）

1. Fiat / Financial Asset-Collateralized

Backed 1:1 by fiat deposits or highly liquid assets (e.g., U.S. Treasuries, commercial paper). These offer strong stability and redemption rights, suited for large-scale payments and settlements. However, reliance on custodians creates centralization and regulatory risks.

- **USDT (Tether):** Largest by market cap, backed by Treasuries, gold, and cash. Widely used in trading and DeFi, but faces scrutiny over transparency and compliance.
- **USDC (Circle):** Backed by cash and Treasuries, highly transparent, aggressively pursuing compliance, issued across multiple chains, with partnerships with Visa/Mastercard.
- **FDUSD (First Digital Labs):** 1:1 backed, custodied by First Digital Trust.
- **USD1 (World Liberty Financial):** Uses Chainlink PoR, politically backed, but still developing audit and compliance transparency.

2.Crypto-Collateralized

Backed by overcollateralized crypto assets (ETH, BTC). Fully on-chain, decentralized, censorship-resistant, and transparent. But low capital efficiency and liquidation risks during volatility remain major weaknesses.

- **DAI (MakerDAO) / USDS (Sky Protocol):** DAI pioneered crypto-collateral models. Recently, MakerDAO evolved into Sky Protocol, launching USDS, which supports RWAs

and advanced mechanisms. USDS has become the 5th largest stablecoin, signaling trust in decentralized models, despite volatility and regulatory challenges.

3.Algorithmic (Partially or Non-Collateralized)

Maintains stability via supply adjustments (mint/burn). Advantages: decentralized, capital-efficient. Risks: no reserves, prone to collapse in crises of confidence.

- **UST (Terra):** Infamous collapse due to its LUNA linkage, exposing systemic fragility.
- **Frax (Frax V3):** Initially part-algorithmic, now pivoted to 100% collateralization (USDC, Treasuries) under regulatory and market pressure.

4.Real Asset-Collateralized

Backed by commodities like gold, oil, or real estate. Suited as inflation hedges and value stores, but liquidity and verification remain challenges.

- **PAXG (Paxos Gold):** Each token backed 1:1 with LBMA gold bars. Holders can verify serial numbers and redeem for physical gold, offering transparent RWA management.
- **XAUT (Tether Gold):** Similar gold-backed model, marketed as an inflation hedge.

5.Yield-Bearing Stablecoins

Distribute income from underlying investments (e.g., Treasuries, lending protocols). Designed as “hold-to-earn” stable assets bridging TradFi and DeFi.

- **Ethena USDe:** Uses crypto collateral, synthetic hedging, and derivatives to maintain peg and generate yield. Yield is distributed via staked sUSDe. Now the 3rd largest stablecoin by market cap.
- **USDY (Ondo Finance):** Backed by Treasuries and bank deposits, managed by a trustee. Offers auto-yield with two versions: cumulative yield token and rUSDY (stable price).

Overall, Stablecoins are evolving from simple USD-pegged tools into multi-functional financial instruments combining payments, yield, and compliance. Their diversification not only enriches the crypto-financial system but also paves the way for integration with traditional finance.

4.2 Emerging Track: Stablecoin Infrastructure and Application-Layer Innovation

4.2.1 The Rise of Stablecoin Blockchains: Dedicated "Highways"

As annual stablecoin settlement volume approaches tens of trillions of dollars, the bottlenecks of general-purpose blockchains such as Ethereum—in terms of performance, cost, and compliance—are becoming increasingly evident. Building dedicated "highways" for stablecoins and global payments has become an inevitable trend, giving birth to a new and fiercely competitive sector: stablecoin infrastructure.

Key drivers:

- **General-purpose blockchain bottlenecks:** Ethereum processes ~15 TPS, with high and volatile gas costs, making it unsuitable for small, high-frequency payments. New L1s offer speed and cost improvements, but ecosystems remain fragmented with dispersed liquidity.
- **Expanding payment demand:** Stablecoins are already being used in cross-border remittances, supply chain finance, and payroll. This trillion-dollar market urgently requires a low-cost, high-efficiency settlement layer. Payment use cases demand 10,000+ TPS, fast finality, and low fees—requirements that often conflict with the decentralization goals of general-purpose blockchains.
- **Clearer regulation:** The U.S., EU, Singapore, and others are accelerating the rollout of stablecoin regulations, emphasizing traceability and risk control, boosting institutional willingness to participate.
- **Issuer strategy upgrades:** Tether and Circle are no longer content with just "issuing" but are now building their own blockchains to capture transaction fees and MEV while enhancing regulatory compatibility.
- **Application-driven demand:** Stripe and PayPal need seamless merchant migration, while payment firms like Alchemy Pay are building settlement layers to aggregate multi-chain liquidity. New frameworks such as Converge are exploring the fusion of TradFi and DeFi.

4.2.2 Four Core Models of Infrastructure Competition

The rise of stablecoin blockchains is not a single evolutionary path but rather the result of diverse participants, each with different backgrounds and strategic intents. The current landscape can be summarized into four models: issuer-led, traditional payment giant-led, crypto payment service-led, and institution-grade DeFi/RWA hybrid. Each model differs in market positioning, technical path, and ecosystem strategy, collectively driving diversification of stablecoin infrastructure.

Model 1: Issuer-Led — Building Native Ecosystems & Closing the Value Loop

The issuer-led model is represented by Tether and Circle. For years, Tether has accumulated a massive user base through global USDT circulation, but most transaction fees and MEV revenue were siphoned off by external networks like Ethereum and Tron. To close the value loop, Tether has launched Plasma and Stable, while Circle is developing Arc, a more ambitious attempt to build financial-grade infrastructure akin to a “digital central bank.”

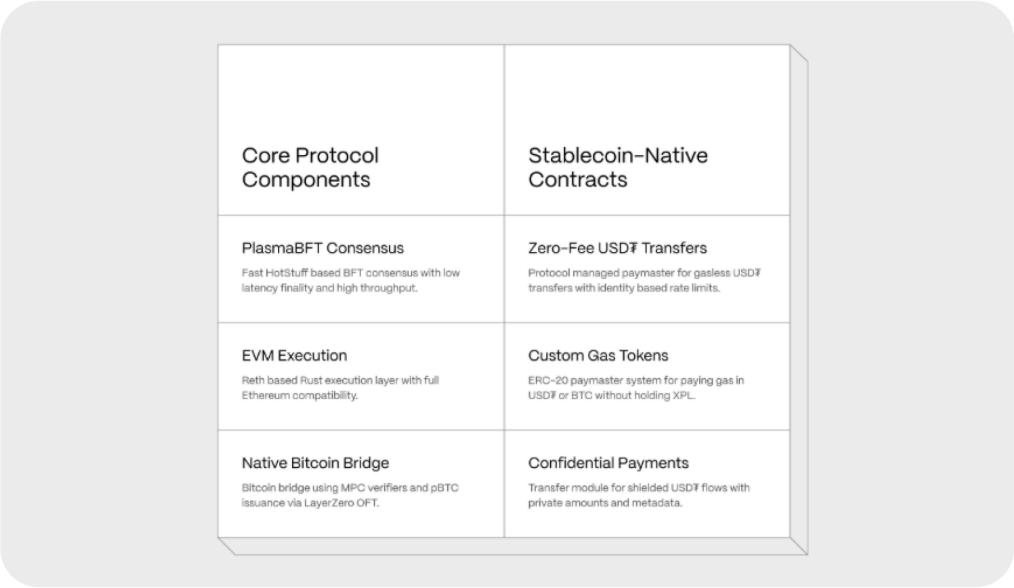
1. Plasma: A “Free Model” Experiment for Retail Payments

Plasma is supported by Tether and its parent company Bitfinex. According to *Fortune*, its investors include Framework Ventures and PayPal co-founder Peter Thiel.

Key features

Plasma is a Bitcoin sidechain that promises zero-fee peer-to-peer USDT transfers while maintaining Ethereum compatibility to attract retail users. Its “freemium” strategy provides free small-value transfers, while complex or large transactions incur fees (payable in USDT or BTC), generating revenue.

Figure 11: Plasma Technology Features



Gate Research, Data from: Plasma

Gate Research

According to Plasma’s technical documentation, the chain leverages a native Bitcoin bridge to import BTC, combines it with Tether’s USD pools, and builds a BTC-USDT multi-asset settlement network with strong ties to the Bitcoin ecosystem. With USDT at its core, Plasma aims to rapidly establish its own payment network through low-cost transactions, usability, and Bitcoin reserve integration.

Strategic rationale

Plasma targets the retail payment market—particularly high-frequency USDT transfers historically dominated by Tron, widely used in Asia due to its low costs but plagued by compliance risks. If regulation tightens, Tether's reliance on Tron could become a liability.

Thus, Plasma's role is "value recapture." By running its own chain, Tether can internalize fees and MEV revenues previously lost to Ethereum and Tron.

Strengths and challenges

Plasma's zero-fee model may rapidly attract users, supported by Tether's liquidity and Bitfinex's exchange backing. However, its ability to retain users and developers remains uncertain, and whether the freemium model can sustain profitability is unproven. If activity concentrates mainly on free transfers without sufficient smart contract usage, network revenue may not cover long-term costs.

Although EVM compatibility lowers barriers for developers, "free transfers" alone may not be compelling enough to foster a diverse ecosystem. Without broader utility, Plasma risks being reduced to a single-purpose chain.

2. Stable: A High-Value USDT Settlement Chain for Institutions

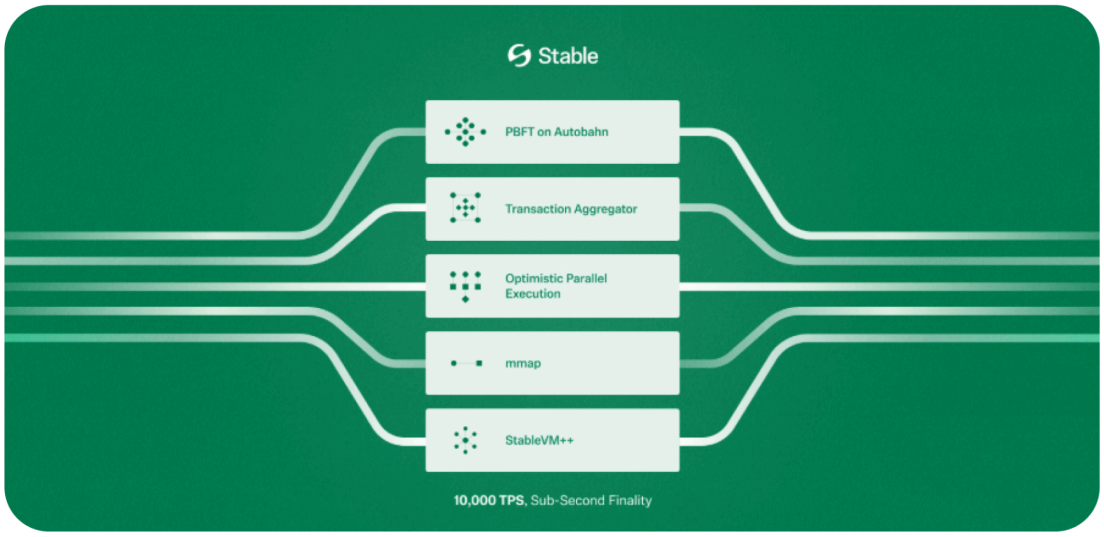
Stable is backed by Bitfinex and USDT0. According to *The Block*, it raised $28 million in July 2025. Tether CEO Paolo Ardoino has been deeply involved since inception, underscoring its strategic importance.

Key features

Stable is an independent Layer 1 chain designed specifically for institutional and enterprise-grade payments. It uses a proprietary delegated proof-of-stake consensus called StableBFT (based on CometBFT) and plans future upgrades to a DAG architecture for scalability.

Stable adopts a highly "institutionalized" design: USDT is the sole gas token, peer-to-peer transfers are free, and enterprises can reserve dedicated blockspace and use batch transaction aggregators. It delivers high throughput (10,000 TPS), near-instant finality, and privacy features tailored to enterprise users.

Figure 12: Stable Technology Features



Gate Research, Data from: Stable Tech Doc

Gate Research

Strategic rationale

Stable targets high-value, low-frequency institutional transactions such as cross-border settlements, corporate B2B payments, and large-scale commodity trades. This differentiates it from Plasma's retail focus.

Strengths and challenges

The dual-chain strategy (Plasma + Stable) avoids internal competition while allowing Tether to cover both retail and institutional markets. Tether's real-world investments (e.g., acquiring Adecoagro in South America) provide testing grounds for Stable's enterprise use cases.

However, Stable's top-down, institution-first approach raises questions about whether it can build strong synergy with Tether's physical investments. Its closed, enterprise-focused model may struggle to gain traction as an open developer-driven ecosystem. Moreover, competition from SWIFT, Visa B2B Connect, and other blockchain-based settlement initiatives means Stable must differentiate itself to succeed.

3. Arc: Financial-Grade Infrastructure for Institutions

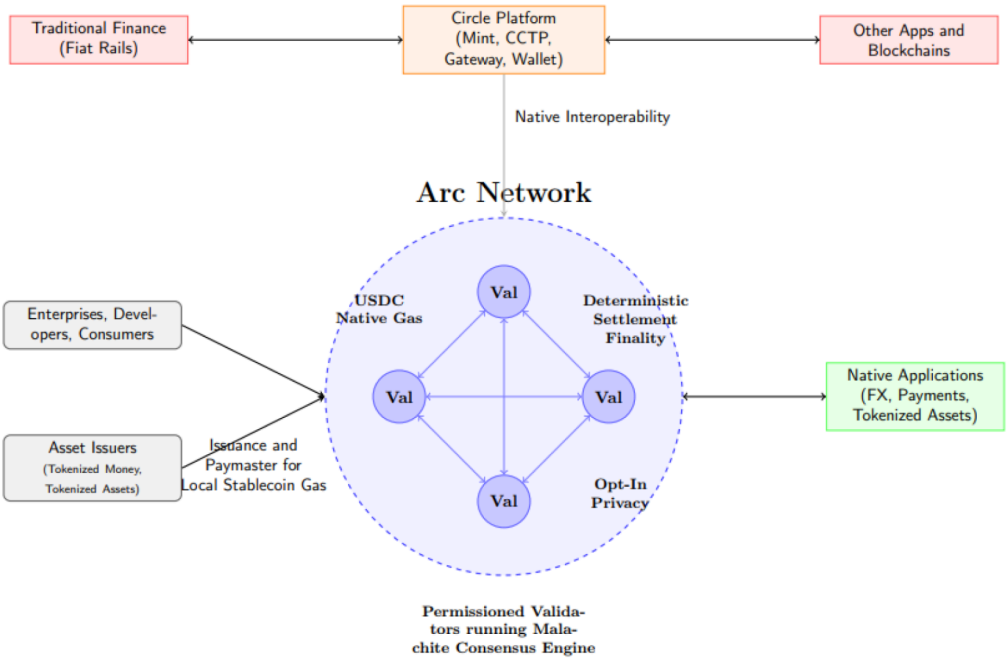
Arc, led by USDC issuer Circle, represents the centerpiece of Circle's strategy. Unlike Tether's value-recapture focus, Arc's ambition is broader: not only to control USDC circulation but to become infrastructure capable of supporting payments, settlements, FX, and capital markets—akin to a "digital central bank."

Key features

Like Stable, Arc targets institutional clients. Its litepaper highlights a balance between performance, compliance, and ecosystem integration, aiming to deliver a full-stack blockchain solution for enterprises and financial institutions.

Arc uses USDC as the native gas token and emphasizes financial-grade finality, offering enterprises the stability of traditional finance. It integrates natively with Circle's existing services: Circle Mint, cross-chain protocol CCTP, and Gateway.

Figure 13: Arc Technical Architecture



Gate Research, Data from: Arc Litepaper

Gate Research

Strategic rationale

Arc is designed for fintechs, PSPs, financial institutions, and multinational corporations that demand performance, compliance, predictable costs, and composability. Its goal is to provide a programmable, feature-rich payments and settlement platform.

By running its own chain, Circle can fully internalize USDC transaction and clearing revenues, building a sustainable business model. This reflects Circle's "infrastructure-first" logic—prioritizing control over the underlying rails rather than just expanding use cases.

Strengths and challenges

Arc's strengths lie in ecosystem integration and compliance. Backed by Circle's network of payment rails, cross-chain protocols, and wallet services, Arc can deliver near end-to-end capabilities. Its long-standing regulatory focus gives it higher credibility among traditional financial institutions.

The tension lies in its highly vertical integration: while this creates a seamless experience, it may limit ecosystem openness and reduce appeal for decentralized developers. Moreover, Arc's ambitious scope exposes it to heavier regulatory scrutiny than Tether. Striking a balance between compliance and growth will be critical to its future trajectory.

Model 2: Traditional Payment Giant-Led — Defensive Expansion Leveraging Existing Advantages

This model is driven by Web2 payment giants such as **Stripe**, who already hold hundreds of millions of users and vast merchant networks. At its core, this represents the natural extension of their core payment businesses into the Web3 era. Their goal is to leverage blockchain technology to optimize existing payment processes, reduce costs, and explore new business models.

Tempo: A Seamless Global Enterprise Payment Network Embedded in Stripe's Ecosystem

Tempo is a project secretly developed by global payments giant Stripe, in deep partnership with top crypto venture firm Paradigm. Paradigm co-founder and managing partner Matt Huang, who also sits on Stripe's board, has been appointed as Tempo's first CEO.

Blockchain features

Tempo is a standalone EVM-compatible Layer 1 blockchain purpose-built for payment scenarios. According to *CoinDesk*, it is still under stealth development with a small five-person team. While details on token design, governance, and launch timeline remain unclear, its strategic goals and core features are gradually emerging.

Tempo is designed for seamless integration with Stripe's existing ecosystem and optimized for high-performance, low-latency payment scenarios. It is deeply tied to Stripe's acquisitions of Bridge (stablecoin issuance) and Privy (wallet entry point), forming a closed full-stack ecosystem.

Strategic rationale

Tempo's target customers are Stripe's global merchant network and enterprise clients—not retail crypto users competing on general-purpose blockchains. Instead, it aims to provide efficient, secure, and low-cost payment infrastructure for real-world commerce.

Tempo is not designed for crypto-native users but for Stripe's massive traditional merchant base. For millions of businesses, Tempo could serve as their first entry point into stablecoin usage. Stripe's primary goal is to make this transition as "blockchain-invisible" as possible.

At a strategic level, this is a defensive expansion: Stripe wants to ensure that when merchants adopt stablecoin payments, they remain within its ecosystem rather than bypassing it.

Strengths and challenges

Stripe's millions of active merchants and enterprise customers give Tempo direct access to real-world business scenarios and traffic—solving the toughest problem most blockchains face: user acquisition. Through its acquisitions of Bridge and Privy, Stripe has secured full-stack control, enabling it to deliver a highly optimized, unified user experience. Its compliance expertise and long-standing trust in the global payments market also provide a strong endorsement and lower adoption barriers among traditional clients.

However, Tempo's limitations are also apparent. Its heavy alignment with Stripe's commercial logic may reduce openness and limit ecosystem spontaneity. Its defensive orientation may also constrain innovation. On the execution side, market education and the cost of migrating customers remain core challenges.

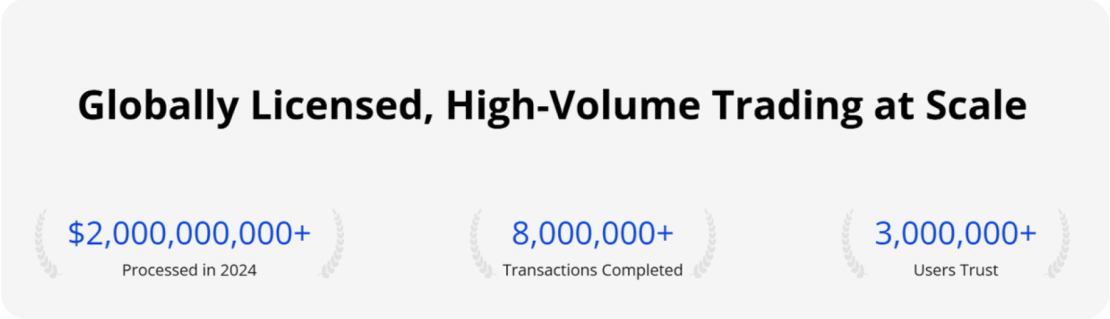
Model 3: Crypto Payment Service-Led — Practice-Driven Self-Reinvention

This model emerges from crypto payment service providers who have years of hands-on experience at the fiat–crypto interface. It represents a bottom-up, practice-driven approach. Their core strategy is "channel-driven": by building their own blockchains, they aggregate stablecoin liquidity across chains and leverage strong on/off-ramp capabilities to enable seamless conversion between stablecoins and fiat currencies—supporting merchants and enterprises with fiat settlement. Ultimately, they aim to evolve from simple payment gateways into infrastructure platforms defining the next generation of global settlement rules.

Alchemy Chain: The "Stablecoin Settlement Hub" for Global Fiat

Founded in 2017, Alchemy Pay is a crypto payments company. According to official data, it has served over 3 million users, covering 173 countries and 50+ fiat currencies, and processes more than 8 million transactions annually. Its team has developed Alchemy Chain, a Layer 1 blockchain purpose-built for stablecoin payments, designed to efficiently solve global cross-border payment and fiat conversion challenges.

Figure 14: Alchemy Chain Core Data



Gate Research, Data from: Alchemy Chain

Gate Research

Blockchain features

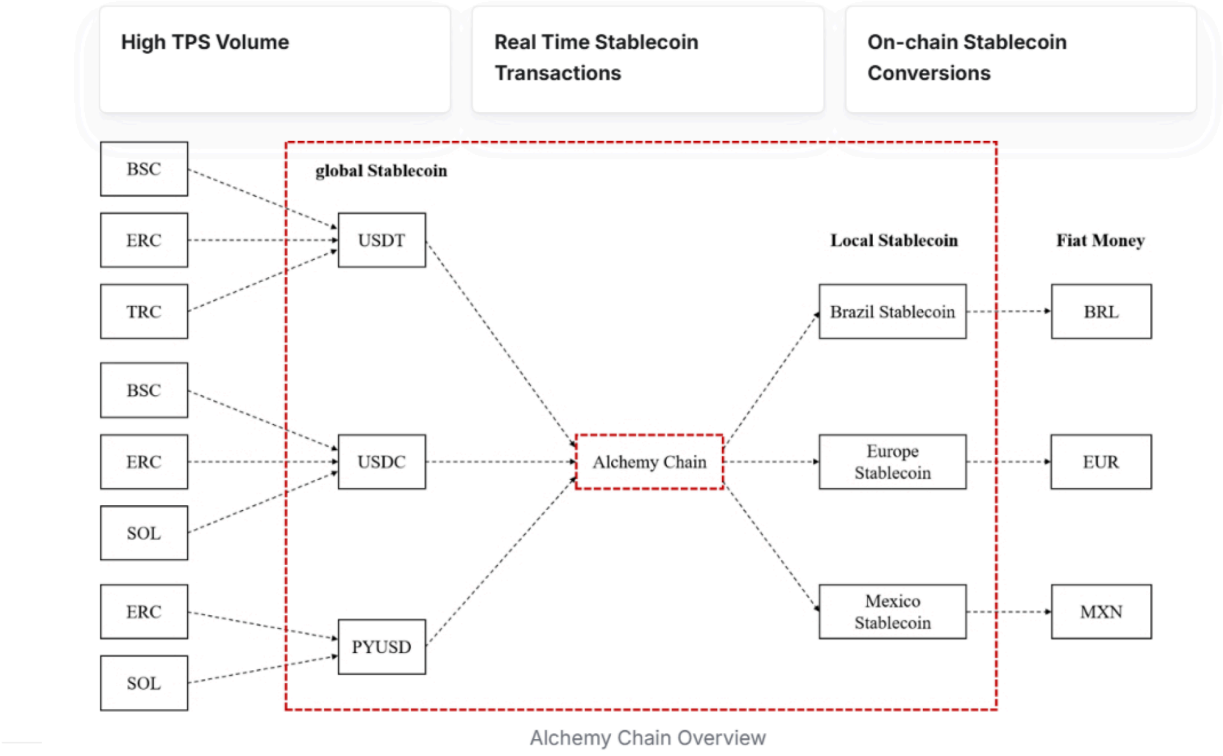
Unlike other blockchains, Alchemy Chain positions stablecoins as “instant settlement bridges.” Its core flow is: Fiat A → Stablecoin → Fiat B, with stablecoins serving as neutral, efficient value carriers for cross-border transfers.

Instead of aiming for full DeFi compatibility, its architecture takes a subtractive approach, retaining only the essential functions needed for payments to ensure low costs and high reliability.

The settlement process on Alchemy Chain has three steps:

1. **First mile (On-Ramp):** Convert enterprise fiat instantly into stablecoins (e.g., USDC/EURC).
2. **Middle settlement:** Transfer cross-border via Alchemy Chain’s high-speed network within seconds.
3. **Last mile (Off-Ramp):** Convert stablecoins back into destination fiat and deposit into local bank accounts.

Figure 15: Alchemy Chain Core Processes



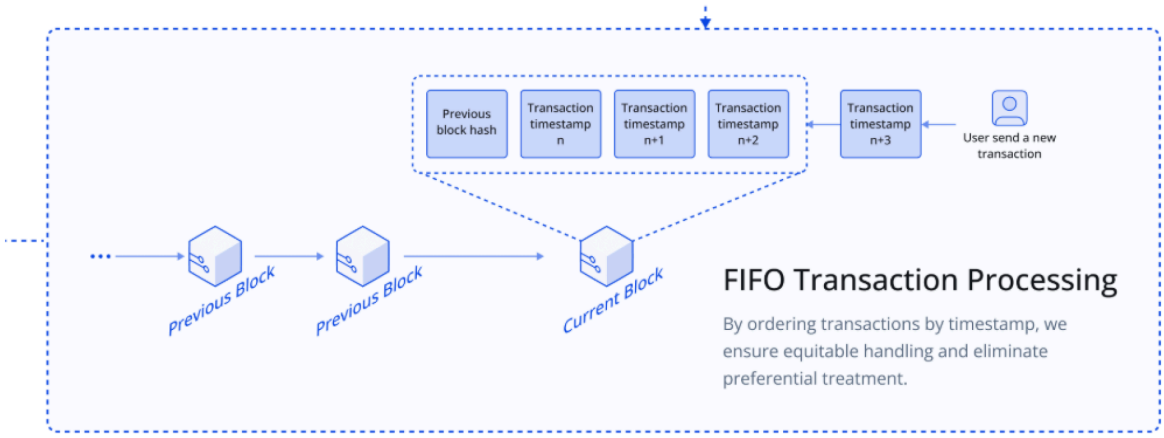
Gate Research, Data from: Alchemy Chain Whitepaper

Gate Research

According to its whitepaper, Alchemy Chain has built several payment-optimized mechanisms:

- **FIFO (First-In-First-Out):** Transactions are strictly processed in arrival order, avoiding “pay-to-prioritize” issues.
- **On-chain real-time FX rates:** Validator nodes integrate price feeds directly at the consensus layer to calculate exchange rates, reducing oracle reliance and latency risks.

Figure 16: Alchemy Chain FIFO Transaction Flow



Gate Research, Data from: Alchemy Chain

Gate Research

Additionally, its Block-Wing hybrid storage mechanism records key transaction data (addresses, amounts) on-chain for security and verifiability, while large auxiliary data (invoices, receipts) are stored off-chain in a decentralized Block-Wing network—reducing mainchain load and ensuring long-term efficiency and low cost.

Strategic rationale

Alchemy Chain does not seek to compete with Ethereum or other general-purpose blockchains. Instead, it aims to use Web3 technology to rebuild the global payments system represented by SWIFT. It seeks to elevate enterprise payment processing from a “service” into a “platform,” lowering gas costs while creating new revenue streams and strengthening control over global payment infrastructure. Strategically, Alchemy Pay is evolving from a “payment gateway” into a “settlement hub,” seeking not only to intermediate but to define new global payment rules through stablecoin settlement.

Strengths and challenges

Alchemy Chain’s moat lies in the global fiat on/off-ramp network that Alchemy Pay has already built. It has deep partnerships with Visa, Mastercard, and numerous local wallets and banking rails worldwide—barriers that stablecoin issuers or Web3-native teams cannot easily replicate.

As a payment provider, Alchemy Chain enjoys neutrality in stablecoin aggregation: it can integrate USDT, USDC, and other stablecoins without prioritizing its own asset, making it easier to gain ecosystem-wide acceptance and cooperation.

However, its payment-focused positioning may limit the depth and diversity of its broader application ecosystem. Whether Alchemy Chain can strike the right balance between compliance, efficiency, and cost will be the key determinant of its long-term competitiveness.

Model 4: Institutional DeFi and RWA Integration — Pioneering a New Financial Frontier

The fourth model represents the forward-looking direction of stablecoin blockchains, jointly advanced by top DeFi protocols and regulated traditional finance (TradFi) institutions. Its objective extends beyond payment optimization, aiming to build the underlying financial infrastructure capable of hosting, trading, and settling tokenized real-world assets (RWA). In this model, stablecoins are no longer just a medium of exchange but also function as native gas tokens, core collateral, and value settlement tools — serving as the bridge between on-chain and off-chain economies. This could propel the stablecoin market from the hundreds of billions to the multi-trillion-dollar scale.

Converge: A Powerful Alliance Between Crypto-Native Dollars and Regulated RWAs

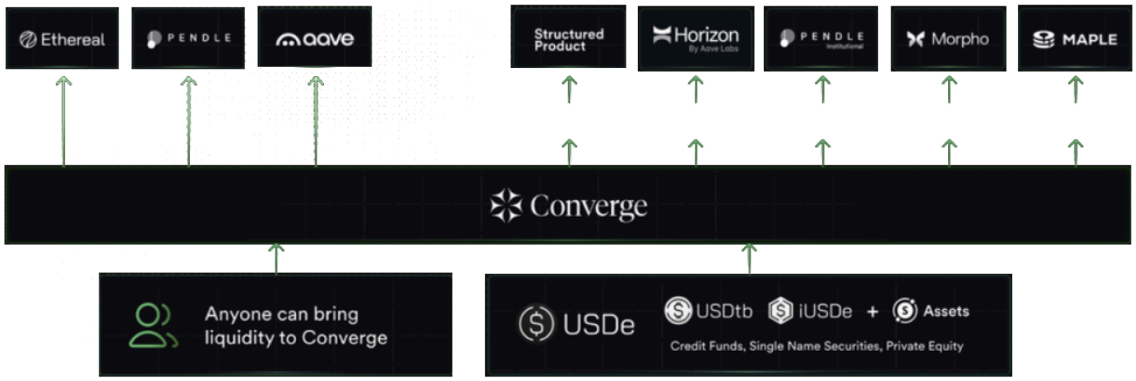
Converge is a collaboration between Securitize, a leader in RWA tokenization, and Ethena, a cutting-edge DeFi protocol. Securitize has issued over $20 billion in on-chain securities, partnering with firms such as Apollo, BlackRock, and KKR; Ethena manages over $6 billion in assets via its delta-hedged USDe, representing the frontier of DeFi innovation. Converge's vision is to become the institutional-grade settlement layer bridging TradFi and digital dollars.

Blockchain Features

Converge's most notable innovation lies in its creation of a dual-track environment within the same blockchain space, enabling two fundamentally different compliance regimes to coexist and interoperate.

According to Converge's technical details and roadmap, the Permissioned Apps Zone allows TradFi institutions to trade assets, use leverage, and operate tokenized securities under compliance safeguards, while the Permissionless Apps Zone provides DeFi protocols with an open arena for experimentation. This dual-ecosystem model dissolves the longstanding divide between traditional and decentralized finance, offering a shared environment with regulatory separation.

Figure 17: Converge Technical Details



Gate Research, Data from: Converge

Gate Research

USDe and USDtb serve as native gas tokens, directly binding transactional activity with core assets, while providing endogenous liquidity and network incentives.

Strategic Logic

Converge is purpose-built as an institutional settlement layer to merge TradFi with DeFi. Rather than serving retail users, its focus is on removing the structural barriers that have prevented trillions of dollars in institutional capital from migrating on-chain.

TradFi institutions remain concerned about blockchain robustness and regulatory uncertainty, while DeFi protocols lack access to compliant RWAs to fuel expansion. Converge's mission is to bridge this gap, becoming a trusted and feature-complete middle layer. Through this entry point, institutions can migrate large-scale assets on-chain under compliance, while leveraging DeFi's composability to create unprecedented products and efficiencies.

Advantages and Challenges

Converge avoids the TPS/gas arms race of general-purpose blockchains, pioneering the "Institutional DeFi + RWA" track with virtually no direct competitors and a strong ecological niche advantage.

The combined resources of Securitize and Ethena create a unique blend of "compliant assets + native capital." Ethena has committed to migrating its $6 billion ecosystem onto Converge, onboarding partners such as Pendle, while Securitize brings its $20+ billion in tokenized securities issuance and partnerships with top asset managers like BlackRock.

Yet challenges loom large. Merging strictly regulated securities trading with open DeFi protocols within a single network inevitably triggers complex global legal and compliance issues. Success hinges not only on technological execution but also on navigating evolving regulatory

environments. Moreover, regulatory divergences in RWA tokenization and stablecoin standards across jurisdictions may constrain the rapid scaling of on-chain financial products.

4.2.3 Conclusion: Differentiated Competition and Endgame Scenarios

The four types of stablecoin infrastructure builders are not engaged in a zero-sum game on the same dimension. Instead, each pursues its own strategic trajectory to capture value at different layers:

- **Stablecoin Issuers (e.g., Tether, Circle):** Competing for "monetary sovereignty." Their goal is to internalize transaction fees and MEV flows that would otherwise accrue to Ethereum, Tron, and similar networks, thereby building tightly controlled ecosystems. Tether segments retail and institutional markets with Plasma and Stable; Circle leverages its compliance brand and product suite to build Arc as a financial-grade infrastructure. Their advantage lies in massive liquidity and market dominance, but they face heightened regulatory scrutiny.
- **Traditional Payment Giants (e.g., Stripe):** Pursuing defensive expansion, focused on providing seamless, low-cost Web3 payment options to their vast merchant networks rather than competing for crypto-native users. Stripe's strength is its global merchant distribution and mature APIs, abstracting blockchain complexity for B2B clients. Yet it must balance innovation with protecting its legacy business.
- **Crypto Payment Service Providers (e.g., Alchemy Pay):** Evolving out of business necessity and self-reinvention, leveraging global fiat on/off-ramp networks to make stablecoins an invisible back-end settlement tool for end-to-end fiat payments. Their competitors are not blockchains but traditional cross-border systems like SWIFT and Western Union. Their strength lies in execution and niche expertise, though scaling from a channel advantage to a full ecosystem remains challenging.
- **Institutional DeFi + RWA Integrators (e.g., Converge):** Representing the frontier of infrastructure innovation. Their mission is to create new markets where compliant RWAs and crypto liquidity coexist in a secure, efficient ecosystem. With dual-track design, they meet both institutional compliance needs and DeFi's openness. Their competition centers on transaction depth and asset quality rather than payment volume. Advantages lie in long-term innovation, but regulatory complexity and long institutional adoption cycles make commercialization uncertain.

Overall, the differentiated strategies across technology paths, target markets, and competitive focuses provide multiple possibilities for the evolution of stablecoin blockchains and infrastructure. The sector is poised for more intense and diverse competition, with each model advancing stablecoins further toward becoming a true global financial infrastructure.

5. Technological Trends and Future Path Development Forecast

5.1 Multi-Chain Compatibility and Cross-Chain Settlement: From Single-Chain Ecosystems to a Global Clearing Network

The early development of stablecoins was almost bound to single chains, showing a typical "single-chain ecosystem model." USDT built massive retail payment networks on Ethereum and Tron, leveraging low fees and fast confirmations to dominate; USDC, backed by Circle's regulatory credibility and Ethereum's developer ecosystem, was deeply integrated into institutional use cases and DeFi protocols. However, as the market surpassed the $100 billion mark, the limitations of single-chain models became increasingly apparent.

- **Performance and cost bottlenecks:** For example, during Ethereum's peak congestion, gas fees for a single stablecoin transfer could exceed $20, making small payments infeasible and blocking retail adoption.
- **Liquidity fragmentation:** While USDC and USDT are issued across multiple blockchains, the lack of unified clearing and settlement mechanisms leads to price gaps, fragmented liquidity, and arbitrage inefficiencies, reducing overall capital efficiency.
- **Regulatory and security challenges:** Cross-chain bridges, currently the main tool for stablecoin transfers, are frequent hacker targets, with single incidents often causing hundreds of millions in losses, damaging trust and deterring institutions.

Against this backdrop, the industry is accelerating exploration of native cross-chain mechanisms and multi-chain compatibility frameworks to break the limitations of single-chain growth:

- **CCTP (Circle Cross-Chain Transfer Protocol):** Pioneered the "burn-and-mint" model—USDC is burned on the source chain and re-minted on the target chain—eliminating double-spending and custody risks associated with bridges.
- **Hybrid off-chain clearing + on-chain mapping:** For example, PayFi is testing a model that matches multi-chain fund flows off-chain, then maps results on-chain, combining off-chain speed with on-chain transparency.
- **Unified liquidity layer:** A future "liquidity hub chain" could emerge to coordinate stablecoin liquidity across blockchains, functioning like a global clearinghouse, removing cross-chain friction.

In short, cross-chain settlement and multi-chain compatibility will be the key threshold for stablecoins to become global settlement currencies. Those that fail to achieve seamless interoperability risk marginalization, while natively interoperable stablecoins could become the backbone of the global value internet. As more regulated institutions and payment giants enter, cross-chain clearing will not only impact efficiency and security but also serve as a cornerstone in the geopolitical competition over monetary dominance.

5.2 Application Expansion: From On-Chain Finance to the Real Economy

Stablecoins are transitioning from a mere “medium of exchange” to a foundational operating system for finance and the real economy. They are no longer just tools for trading, but are becoming central to capital flows, asset pricing, and value settlement.

DeFi financial services: Stablecoins are irreplaceable in lending, derivatives clearing, and DEX liquidity, serving as the pricing anchor in volatile crypto markets. Next-generation yield-bearing stablecoins (e.g., sUSDe, sUSDS) embed yield directly into the asset—“holding generates yield”—lowering entry barriers and making them closer to traditional reserve assets. Over time, stablecoins may evolve into the “ultimate reserve currency” for on-chain liquidity.

Supply chain finance & enterprise settlement: Stablecoins enable real-time settlement + auditable ledgers, cutting reconciliation and time costs. In emerging markets, they replace inefficient letters of credit for cross-border procurement. Programmable stablecoin invoices, tied to smart contracts, ensure automatic settlement, improving cash flow and reducing defaults.

RWA tokenization & capital markets: Stablecoins are becoming the settlement currency of choice for RWA tokenization (securities, bonds, funds). For example, Securitize has issued over $20B in tokenized securities, mostly settled in USDC. They also serve as collateral for RWA investment pools spanning treasuries, real estate, and carbon credits.

Penetration into the real economy: Stablecoins are increasingly used in payroll, e-commerce, logistics, and cross-border remittances. In high-inflation economies (Argentina, Nigeria), USDT/USDC already function as de facto money. PayFi models are embedding stablecoins into ERP and supply chain systems, creating real-time programmable settlement.

This application trajectory can be summarized as a “three-stage leap”: DeFi → enterprise settlement → real economy payments. Ultimately, stablecoins may grow into the backbone of the global economy’s settlement network.

5.3 The Potential of Non-USD Stablecoins: From Peripheral Supplement to Regional Hub

Currently, USD-denominated stablecoins (such as USDT and USDC) dominate the market with more than 90% market share. However, this landscape is not unshakable. As regulatory frameworks take shape and regional financial markets seek greater local currency settlement and monetary sovereignty, non-USD stablecoins are shifting from being marginal “supplementary tools” to becoming the “core hubs” of regional digital economies.

Rising Demand for Regional Settlement: In global trade and cross-border financial settlement, the U.S. dollar system has long occupied a central position, but this “single-dollar dependency” is increasingly being challenged. The MiCA regulation is driving the development

of euro-denominated stablecoins such as EURC, with the goal of reducing reliance on SWIFT and the dollar clearing system while enhancing the autonomy of the European internal market. In Japan, the Payment Services Act has established a legal framework for yen-denominated stablecoins, with MUFG and JPYC already launching pilots to facilitate their adoption in domestic payments and regional trade.

Policy Support and Regulatory Clarity: The gradual clarification of policies and regulations is laying the institutional foundation for the growth of non-USD stablecoins. The Monetary Authority of Singapore (MAS) was the first to introduce a dedicated stablecoin regulatory framework, approving StraitsX (XSGD) as a compliant issuer—making the Singapore dollar stablecoin an important tool for payments and fintech innovation in Southeast Asia. In Canada, new rules require exchanges to list only stablecoins that meet the VRCA standard, accelerating the development and adoption of compliant CAD stablecoins. These policy directions not only safeguard local investors' funds but also provide regional fiat stablecoins with stronger institutional backing and greater market legitimacy.

Evolution of the Market Landscape: The future stablecoin market may evolve into a "two-tier structure": U.S. dollar stablecoins will continue to serve as the dominant tool for global capital markets and cross-border capital flows, offering unmatched liquidity and global acceptance; meanwhile, regional local-currency stablecoins will gain increasing influence in specific scenarios such as trade, supply chain finance, and domestic payments. For instance, euro stablecoins may play a role in EU internal clearing, carbon trading, and securitized settlements in capital markets; yen stablecoins could become a vital bridge for Asian cross-border trade and Japanese corporate global supply chain settlements; while emerging markets in the Middle East and Southeast Asia may leverage local-currency stablecoins to build domestic financial networks that partially bypass the U.S. dollar system.

Geofinance and Competition for Digital Currency Sovereignty: From a broader perspective, non-dollar stablecoins are not merely financial instruments but also strategic levers in the competition for digital currency sovereignty among nations and regions. By issuing and applying local-currency stablecoins, countries can enhance financial autonomy in cross-border payments, capital markets, and trade finance, while reducing the influence of U.S. dollar hegemony. This trend will gradually foster a more diversified digital currency landscape, leading to a more balanced global stablecoin market structure.

Over the next five years, the market share of non-dollar stablecoins is expected to rise from its current single digits to 15–20%, becoming indispensable in regional payments, trade finance, and tokenized capital market settlements. This not only signals the emergence of a multipolar stablecoin landscape but also marks a new stage in monetary competition in the digital finance era.

5.4 Long-Term Path of Technology and Market Convergence

The future trajectory of stablecoins will be driven by both technological innovation and application expansion. Over the long run, the industry is likely to progress along three

dimensions of convergence—technological, market, and institutional—which will determine whether stablecoins can evolve from mere transactional media into global financial infrastructure.

Technological convergence: Maturity of multi-chain and programmable money

As multi-chain ecosystems develop, the issuance and circulation of stablecoins will gradually transcend the limitations of individual blockchains. Cross-chain settlement may replace the current reliance on bridges, forming unified underlying standards. This means that stablecoins will enable frictionless value transfer across Ethereum, Solana, and emerging purpose-built stablecoin chains alike. At the same time, the deep integration of stablecoins with smart contracts will bring the concept of “programmable money” into reality. For example, enterprises could leverage programmable stablecoins to automate dividend distribution or enable real-time payments of supply chain receivables, while financial institutions may use them for derivatives clearing and risk management. This trend indicates that stablecoins will evolve from “static assets” into “living assets” with dynamic rules.

Market convergence: Integration with traditional financial rails

At the payment and settlement level, stablecoins are steadily converging with traditional systems. Visa and Mastercard have already piloted direct on-chain settlement using USDC for cross-border transactions, a trend that may extend to SWIFT and other global clearing networks—positioning stablecoins as a “parallel financial highway” alongside existing payment systems. Meanwhile, as real-world asset (RWA) tokenization accelerates, stablecoins are becoming increasingly essential as settlement and collateral instruments in capital markets. The tokenization of securities, bonds, and funds requires stablecoins as the settlement currency, not only improving efficiency but also embedding stablecoins into the core operating logic of global capital markets.

Regulatory Convergence: Compliance and Digital Currency Sovereignty Coexistence

From a regulatory standpoint, policymakers worldwide are progressively clarifying requirements for stablecoins. MiCA provides a clear legal framework in the EU, the U.S. is exploring bringing stablecoins under financial services oversight, and Asian markets are accelerating the development of similar standards. Looking ahead, compliant stablecoins are expected to coexist with central bank digital currencies (CBDCs): CBDCs will focus more on monetary policy implementation and retail payments, while stablecoins will play flexible roles in international trade, capital markets, and innovative finance. As a result, compliance thresholds and technical barriers will emerge as core sources of competitive advantage, reinforcing a “winner-takes-most” dynamic in the market.

The long-term trajectory of stablecoins points toward a comprehensive transformation—from being a transaction medium to becoming a financial operating system. In this process, stablecoins will serve as the cornerstone of the global value internet: a settlement and collateral instrument for financial markets, and a foundational layer for enterprise and individual economic

activity. Over the next 10–15 years, stablecoins are likely to assume a role comparable to internet protocols in the digital economy—indispensable, ubiquitous, and fundamentally reshaping the logic of finance and commerce.

6. Gate Research Outlook: The Next Phase for Stablecoins

6.1 Intrinsic Value and Core Role of Stablecoins

The greatest value of stablecoins lies in their role as a “value converter” between the digital and physical worlds. Acting as a bridge between digital assets and fiat currency systems, stablecoins serve both as the gateway for funds entering and exiting the crypto ecosystem and as the conduit for on-chain innovations to reach the real economy. Their core functions can be summarized in three dimensions:

First, stablecoins are highly efficient payment media. Compared with traditional banking systems, they offer significant advantages in cross-border payments, real-time settlement, and transaction costs. International remittances can be completed within minutes at fees far lower than those of SWIFT or conventional clearing networks, making stablecoins an attractive payment option for emerging markets and high-inflation regions.

Second, stablecoins provide a reliable unit of account. In highly volatile crypto markets, they function as a stable benchmark and safe-haven asset. Whether in derivatives settlement, DEX liquidity pools, or day-to-day transactions, stablecoins act as “digital cash,” forming a foundational pillar for crypto market operations.

Third, stablecoins serve as programmable financial infrastructure. Unlike traditional money, they can leverage smart contracts for automated settlement, payments, and financial logic. From DeFi collateralized lending and RWA tokenization to PayFi-enabled payment finance, stablecoins are the underlying assets that make these systems possible. They are not merely transaction media but form the “operating system” for the next-generation financial ecosystem.

6.2 Key Risks and Challenges in the Current Market

Despite their promising outlook, stablecoins face three main challenges on the path to becoming global financial infrastructure:

First, fragmented and uncertain regulation. While major economies have gradually clarified compliance frameworks for stablecoins, there is no global standard. Cross-border transactions often face regulatory arbitrage and compliance barriers. Divergent requirements across jurisdictions increase compliance costs and constrain large-scale adoption.

Second, centralization and de-pegging risks. Fiat-collateralized stablecoins like USDT and USDC rely on the credibility of issuers and custodians, exposing them to centralization risks. Disputes over reserve transparency or audit compliance can trigger market panic. Decentralized or algorithmic stablecoins offer censorship resistance but still face potential de-pegging during extreme market events.

Third, technical and security risks. Stablecoin operations depend on smart contracts, cross-chain bridges, and custody systems, all of which are frequent targets for attacks. Historical cross-chain bridge exploits have resulted in losses of hundreds of millions of dollars, highlighting systemic vulnerabilities. Any technical flaw or security breach can undermine market trust in stablecoins.

6.3 Future Potential Mainstream Stablecoin Forms

The future stablecoin ecosystem is unlikely to be monopolistic; instead, it will be a “layered, collaborative, and diversified” system:

At the institutional level, a few strictly regulated, bank- or fintech-backed compliant stablecoins (e.g., USDC, PYUSD) will dominate. These stablecoins are highly compliant, strongly trusted, and primarily serve institutional funds, large cross-border payments, and mainstream retail markets, becoming the preferred tools for capital markets and banking systems.

At the DeFi layer, decentralized stablecoins (e.g., next-generation DAI) and innovative yield-bearing stablecoins (e.g., iterations of sUSDe and sUSDS) will take the lead. They provide higher capital efficiency, trustless features, and censorship resistance, offering “permissionless” liquidity for the on-chain financial system.

At the regional level, more non-USD fiat-backed stablecoins will emerge. Stablecoins pegged to EUR, JPY, or SGD will serve local payments and regional trade finance, reducing reliance on the U.S. dollar clearing system. Their rise reflects strategic efforts by nations to assert digital financial sovereignty.

Overall, the future stablecoin ecosystem will not be a “winner-takes-all” market but rather a coordinated, multi-layered system in which different forms of stablecoins serve distinct roles.

6.4 Recommendations for Market Participants

As stablecoins gradually integrate into mainstream finance, different participants should adopt differentiated strategies:

For investors and users, core selection criteria should focus on issuer compliance, reserve transparency, and audit frequency. When seeking yield, users should carefully analyze the underlying mechanisms of yield-bearing stablecoins, fully understanding leverage, collateral volatility, and other risks to avoid systemic losses.

For institutions and enterprises, embracing the efficiency advantages of stablecoins is recommended. Pilot initiatives could start with treasury management and cross-border settlement, gradually expanding to supply chain finance, payroll, and trade finance. Stablecoins' programmability enables unprecedented financial automation and risk control for enterprises.

For developers and projects, stablecoins should be regarded as a core component for next-generation applications. Innovation opportunities lie mainly at the application layer: for example, PayFi solutions built on stablecoins, compliant RWA products for institutions, or automated payment tools for vertical industries such as e-commerce, logistics, and energy. Those who can build a comprehensive stablecoin application ecosystem are likely to define the next global value network.

In summary, stablecoin infrastructure is largely complete, and the industry is at an "iPhone moment" akin to the early smartphone era. The real growth potential lies not in issuance but in building the upper-layer application ecosystem. Future competition will be determined not only by stablecoin adoption but also by application scenarios, regulatory alignment, and ecosystem collaboration.

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