THE X402 POWER MAP

The Positioning

The Agent Economy Before Consensus Forms

They cornered a market that doesn't exist yet.

99.8%	0.00073%
USDC SHARE OF X402 SETTLEMENT · MONOPOLY	SHARE OF GLOBAL E-COMMERCE · PENETRATION

● CRYPTO × AI · SERIES NO.01

RESEARCHER MERIDA LEE & KIKO · MAY 2026

Question everything.

THE PARADOX

They cornered a market that doesn't exist yet.

Coinbase, Circle and Base have locked down x402's base-layer settlement — **but the real users haven't arrived**. The alliance is set; the war hasn't begun.

99.8%
USDC share of x402 settlement · monopoly

0.00073%
Share of global e-commerce payments · penetration

01 Monopoly set, users absent

Coinbase · Circle · Base lock down base-layer settlement (USDC **99.8%** / Base carries **95%** of flow); the alliance is built, real demand has yet to arrive.

$50M / $6.88T
CUMULATIVE / E-COMMERCE TAM

02 Stripe's barbell hedge

Four fronts at once; a $1.1B Bridge buy locks in the stablecoin rail — **unbeatable whichever path wins**.

4 fronts · $1.1B
PARALLEL / ACQUISITION

03 No must-be-on-chain use case

Necessity exists only in API micropayments; traditional retail (B2C) and enterprise SaaS (B2B) have **no reason to migrate**.

API micropay only
THE ONLY REAL DEMAND

04 Value capture is brutal

x402 has no token and no fees; a thriving ecosystem only **flows back to Circle, Base and cloud providers** — agent tokens have no clear capture logic yet.

No token · no fees
PROTOCOL TAKES ZERO CUT

05 The biggest gray rhino

Ant's AMP arrives with **1.8B accounts, 150M merchants** against x402's mere 170+ native entities — "agent payment = crypto payment" is under challenge.

1.8B vs 170+
ACCOUNTS / ENTITIES

EXECUTIVE SUMMARY

TL;DR

USDC monopolizes 99.8% of settlement, yet that is still just 0.00073% of the global e-commerce payments market. Coinbase, Circle and Base have effectively cornered x402's base-layer settlement infrastructure. And yet today's $50M in cumulative volume is a rounding error against the $6.88T global e-commerce market. The incumbents have assembled the alliance, but the real users on the sidelines have yet to step in.

Stripe is running a textbook "barbell hedge," locking down its downside with $1.1B and its own ecosystem. As one of x402's three governing bodies, it bets on no single standard: joining x402 to keep a voice, building its own chain (Tempo), shipping a rival protocol (MPP) — already generating real traction at the likes of Browserbase — and spending $1.1B to acquire Bridge and lock in the stablecoin rail. Whichever path wins, Stripe cannot lose.

x402's necessity today exists only in API micropayments; traditional retail and enterprise SaaS have no reason to migrate on-chain. There is no use case in the current agent economy that must use crypto. Beyond cross-organization low-value transactions and micropayment settlement, the approach lacks a core pain point in mainstream consumer e-commerce (B2C) and enterprise SaaS (B2B), and its growth ceiling remains unproven by data.

Value capture is brutal: x402 itself captures no value. Released under Apache 2.0, x402 levies no tax and issues no token. If the ecosystem takes off, it merely forces more capital into Circle's Treasury reserves to mint USDC, piles ever more sequencer fees onto Base, and helps cloud providers like AWS lock in enterprise agents' compute-hosting spend. Web3's "agent infrastructure tokens," lacking any clear fee model or claim on cash flow, have no clear value-capture logic yet.

The biggest gray rhino may be the higher-dimensional assault from APAC's leading player, Ant International, wielding 1.8 billion accounts. The market's implicit assumption — "agent payment = crypto payment" — is being challenged by Ant International (Alipay+). Its AMP protocol likewise supports $0.000001-scale micropayments, KYA and dynamic risk ratings, but plugs straight into 40-plus mobile wallets, 1.8 billion users and 150 million merchants. Against x402's mere 170-odd native entities, once a Web2 giant takes a flesh-and-blood position in APAC, the on-chain narrative faces a serious challenge.

FOREWORD

Foreword

The agent economy is one of the hottest arenas of late 2025 and early 2026, with capital, protocols and institutions all converging at speed. The three questions the market asks most often — what is the agent economy, what role does crypto play in it, and how can one participate — have no clear answers today.

We believe the root cause is a more structural fact: agent technology has evolved explosively since the second half of 2025, far outrunning the pace at which understanding forms, rules are set, and consensus converges. In more classical terms, the leap in productive forces has outrun the update of the relations of production.

Against this backdrop, every leading player is already on the field. This report therefore focuses on the most concrete piece of agent-economy infrastructure — payments — to make each participant's position visible: where it stands, where it looks, and what it is betting on.

PART I · A STRUCTURE OUT OF SYNC

A Structure Out of Sync

> In half a year the technology layer expanded from one standard to four; the cognition layer still swings between panic and euphoria; the rules layer remains a consensus vacuum across four basic dimensions. The mismatch in their speeds is a structural fact.

1.1 The Triple Mismatch of Technology, Cognition and Rules

Technology: a dense run of milestones in six months

From the second half of 2025 into early 2026, the agent economy's technical infrastructure advanced at rare speed. In November 2024 Anthropic open-sourced MCP, defining the standard for exposing tools and data to agents; in May 2025 Coinbase open-sourced x402; in October 2025 Visa launched the Trusted Agent Protocol (TAP); in December 2025 Anthropic handed MCP to the Linux Foundation.

In Q1 2026, Google launched AP2, OpenAI launched ACP (draft), Circle launched Nanopayments, and ERC-8004 deployed to mainnet; on March 18 Stripe and Tempo launched MPP; on April 2 the x402 Foundation was formally established under the Linux Foundation with 22 founding members, AWS launched AgentCore Payments and Circle launched Agent Stack. **Within half a year, agent payments expanded from a single standard to at least four competing schemes.**

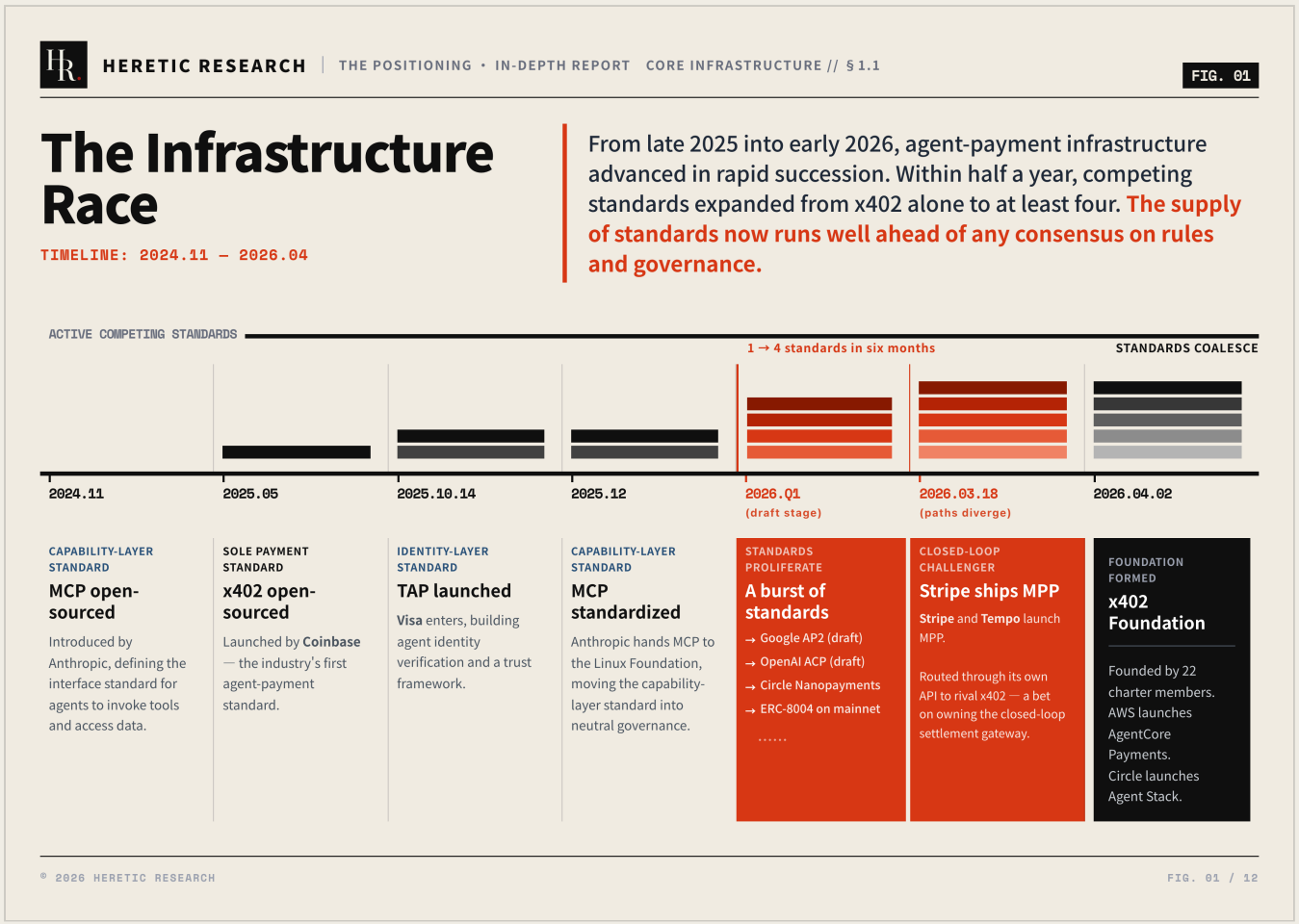

FIG. 01 — THE INFRASTRUCTURE RACE · SOURCE: HERETIC RESEARCH

Cognition: capital FOMO far outpaces industry consensus

In February 2026 a Citrini Research report wiped 5–7% off the market caps of Visa, Mastercard and American Express in a single day. The reason for the panic: stablecoins might bypass the card networks' 2–3% fee. But the degree of panic was wildly out of line with reality — at the time x402's real daily volume, after Artemis filtering, was only about **$28K**, against a $6.88 trillion global e-commerce market. **That $28K moving trillions in market cap shows the market is still swinging between the extremes of panic and euphoria.**

Practitioners and investors are equally lagged and disjointed. In the same quarter, Dragonfly Capital closed a $650M fourth fund — a display of capital's fear of missing out — yet only now did a16z hastily put forward the basic "Know Your Agent (KYA)" compliance framework. Capital has converged far faster than consensus has formed.

Rules: the "premature birth" of infrastructure and a consensus vacuum

Even as capital and narrative accelerate, the rules-layer foundation that decides whether AI agents reach mass commercial use remains in a raw, chaotic state. This shows up as a consensus vacuum across four core dimensions: **identity** (who is the actor? ERC-8004 is still a draft, with 200K+ registrations and no verification or staking gate); **payment** (how to pay? x402 / MPP / TAP are fragmented across three, likely unresolved for 12–18 months); **coordination** (how to interact? AP2 / ACP are only drafts, with no EIP/RFC, no production deployment, and overlapping functions); and **reputation** (how to trust? a micropayment-dominated ecosystem has no independent reputation or credit protocol, and sub-cent tickets can't sustain standalone credit scoring).

The vacuum across these four dimensions shows that the mismatch in the pace of progress is a structural fact. The technology layer expanded from one standard to four in half a year, while the cognition layer is still at the draft stage.

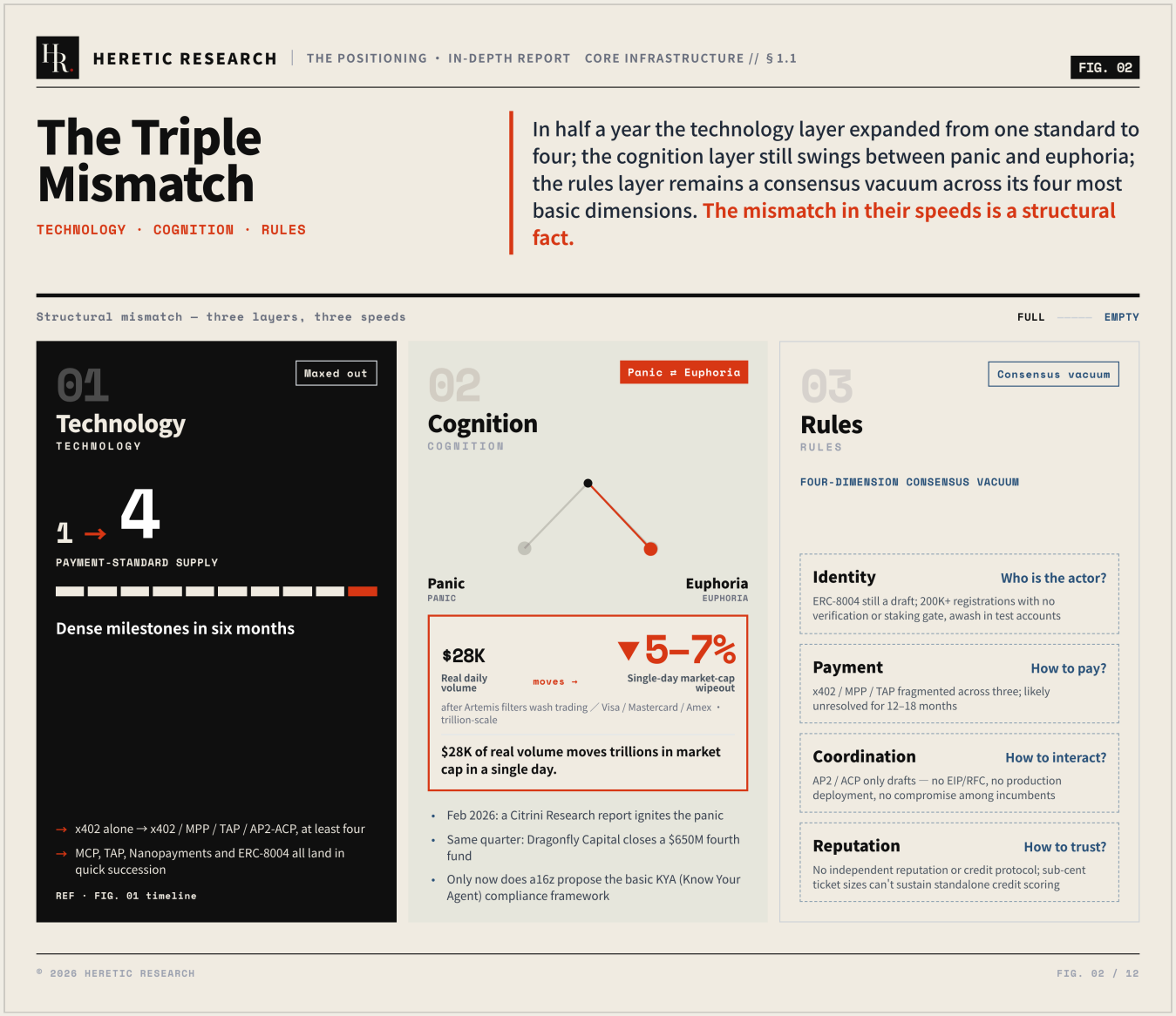

FIG. 02 — THE TRIPLE MISMATCH · SOURCE: HERETIC RESEARCH

1.2 "Ambiguity" Becomes an Equilibrium of the Transition

In a state of mismatch, blurred boundaries serve the participants collectively. All 22 institutions need the narrative that "the agent economy is developing fast": Coinbase needs x402's ecosystem data to justify the Foundation; Visa needs the act of joining to answer fears of being bypassed; Stripe needs multi-pronged bets to stay positioned on every possible path. Each has found its own equilibrium of self-interest within the ambiguity.

So the convergence of market consensus will depend more on substantive breakthroughs in benchmark data – Shopify's agent-payment bills, AWS x402 crossing the one-billion-transaction milestone, the genuine ARR of native projects. Until then, ambiguity is the natural equilibrium. What we set out to do is to draw, within this ambiguity, a clear map – beginning with each participant's position.

PART II · EIGHT POSITIONS

Eight Positions

> The 22 global giants are not evolving in concert. Each stakes out a differentiated position — across rulemaking, financial hedging, business extension and base-layer settlement — built on its own endowments. We confront three core questions: interest, endowment, and capacity to hedge risk.

HERETIC RESEARCH | THE POSITIONING · IN-DEPTH REPORT THE EIGHT POSITIONS // § 2

FIG. 3A

Eight Positions

22 FOUNDING MEMBERS · 8 POSITIONS

The 22 founding members of the x402 Foundation are not evolving in concert. Each stakes out a differentiated position — across rulemaking, financial hedging, business extension and base-layer settlement — built on its own existing endowments. **Three questions reveal each hand: interests, endowments, and capacity to hedge risk.**

8 positions × 5 dimensions — rightmost column is the core dimension

Risk hedge: Fully hedged › Strong hedge › Moderate hedge › Weak hedge › Unhedged

POSITION	KEY PLAYERS	INTEREST	CORE ENDOWMENT	RISK HEDGE CORE
Protocol Builder PROTOCOL BUILDER Strong hedge	Coinbase Cloudflare	Push x402 to become the cross-industry base standard, building durable rent-seeking at the network and governance layers	Protocol lawmaking power (Coinbase) + global edge-network traffic gateway (Cloudflare)	Asymmetric: Cloudflare runs low-risk, core business untouched; Coinbase's strategic assets are highly specific, exposed to settlement-share erosion from Solana and others
All-In Hedger ◆ ALL-IN HEDGER Fully hedged	Stripe	Stay unbeatable whichever path wins, holding a core toll-booth seat	A voice in the open standard + its own closed loop (Bridge / Tempo / MPP)	A barbell strategy; the only failure is on-chain agent payments being wholly disproven — yet its Web2 core stays intact
Defensive Occupant DEFENSIVE OCCUPANT Fully hedged	Visa Mastercard American Express	Not be bypassed	Card-network settlement rails + merchant trust	A reverse option: membership fees + limited engineering ≪ the systemic risk of being bypassed; success is locked the moment they join
Business Extender BUSINESS EXTENDER Fully hedged	AWS Shopify Adyen Fiserv PPRO Microsoft KakaoPay thirdweb	Treat x402 as a natural extension of their turf — a pluggable add-on	Vast incumbent businesses (cloud / e-commerce / gateways / regional wallets / developer tools)	No downside to the core business; if the trend is disproven, the core is unharmed
Coordination-Layer Builder COORDINATION LAYER Strong hedge	Google	Set the authorization / rules-layer standard (AP2) above the payment layer and become the ecosystem's gatekeeper	Vertex AI Agent Builder's enterprise user base	A two-way option: if AP2 fails → a defensive position; if AP2 wins → it dictates how x402 coordinates
Settlement Layer ◆ SETTLEMENT LAYER Moderate hedge	Circle Base	Own the high-frequency, micro-value settlement layer that traditional finance cannot carry	USDC issuance (99.8% of settlement) + Base's ultra-low settlement cost (95% of volume / <$0.0001 per tx)	Deeply locked-in but collecting tolls passively; success hinges on total on-chain GTV, not any single app
Edge Challenger EDGE CHALLENGER Weak hedge	Solana Foundation Polygon Labs	Grab more settlement share before winner-take-all network effects harden	Solana's high throughput and low latency (once drove ~65% of volume) / Polygon's EVM fallback network	Risk comes from how fast the winner-take-all dynamic sets in; they lack Coinbase's compliant network and deep USDC integration
Native Builder ◆ NATIVE BUILDER Unhedged	Sierra Merit Systems Ampersend.ai	Every chip on the agent-economy growth curve	Native products / platforms, but no legacy business generating cash	Highest risk — a one-way bet with extreme asset specificity and no hedge; fail to cross the early-adopter chasm within 12–18 months and growth stalls

FIG. 03A / 12

FIG. 03A — EIGHT POSITIONS · SOURCE: HERETIC RESEARCH

2.1 Protocol Builders: Coinbase, Cloudflare

As co-founders and top-level governing bodies of the x402 Foundation, **Coinbase** and **Cloudflare** occupy the purest "standard-setter and network-gateway" position. Their intent is deeply aggressive: to make x402 the cross-industry base standard of the agent economy, building durable rent-seeking at the network and governance layers.

Coinbase (the top-level open-standard lawmaker): on April 2, 2026 it donated the x402 protocol it created to the Linux Foundation. This "de-privatizing" move minimizes the barrier for other giants to adopt it, while letting Coinbase complete a long-term ecosystem loop at the capital-routing and account layers below.

Cloudflare (the physical occupant of the network-layer gateway): the de facto standard for global edge computing, it has built native x402 support into Workers and its AI Agents SDK. It does not care which chain settlement clears on – as long as agents' interactions and payment requests run on HTTP/Web, Cloudflare holds the first routing node from which every agent sets out to check out.

As of May 2026 the x402 ecosystem had logged 170+ entities and 67+ paying endpoints, but ~$50M in cumulative volume is still very early. For protocol builders the core metric is not settlement volume but the speed at which the ecosystem moat converges. The two firms are markedly asymmetric: Cloudflare's core business is untouched (low-risk), while Coinbase's strategic assets are more specific, exposed to settlement-share erosion from Solana and others.

2.2 The All-In Hedger: Stripe

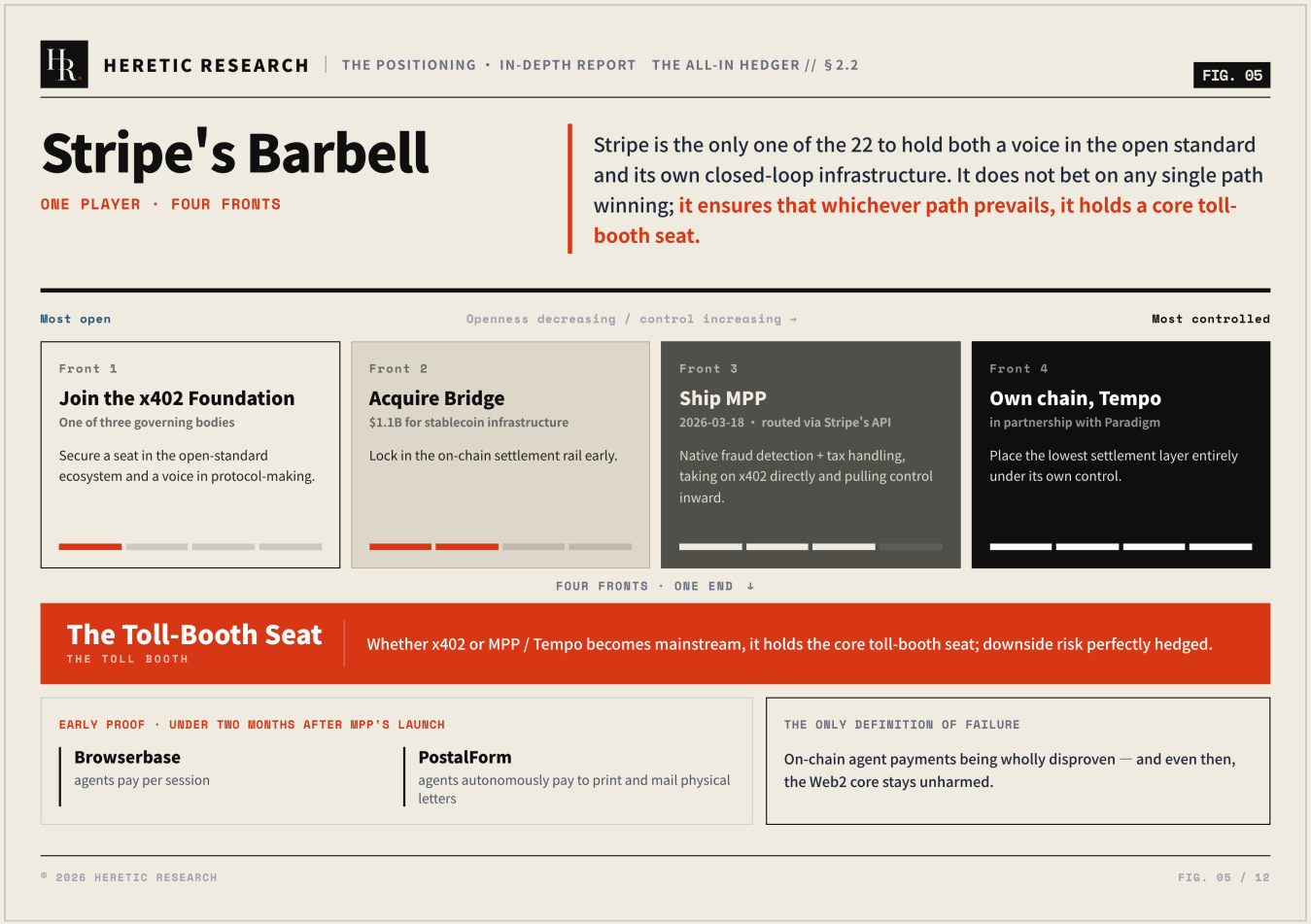

FIG. 05 — STRIPE'S BARBELL · SOURCE: HERETIC RESEARCH

Among the three governing bodies, Stripe's layout is the most complex. Unlike Coinbase and Cloudflare, which bet purely on the open protocol, Stripe runs a textbook barbell strategy – the only one of the 22 to hold both a voice in the open standard and its own closed-loop infrastructure. Along an arc of decreasing openness and increasing control, it advances four fronts at once.

One: joining the x402 Foundation as a governing body, securing an open-standard seat. Two: spending $1.1B to acquire the stablecoin infrastructure Bridge, locking in the on-chain settlement rail early. Three: shipping MPP on March 18, 2026 to take on x402 directly, routed through Stripe's API with native fraud detection and tax handling. Four: partnering with Paradigm to launch its own chain, Tempo, placing the lowest settlement layer entirely under its own control.

This makes Stripe's definition of success unusual: it bets on no single path, but ensures that whichever wins, it holds a core toll-booth seat. The only failure is on-chain agent payments being wholly disproven – and even then its Web2 core stays unharmed. Per its blog, in under two months MPP had logged real adoption, including Browserbase's per-session payments and PostalForm's agents autonomously paying to print and mail physical letters.

2.3 Defensive Occupants: Visa, Mastercard, American Express

The traditional card networks led by Visa, Mastercard and American Express hold a position that is **purely defensive placement**. The most direct trigger for joining the Foundation in early 2026 was the Citrini Research report event — facing the valuation crisis of "stablecoins + AI agents will bypass the card networks" and a 5–7% single-day wipeout, joining x402 is a defensive response to market panic.

Their motive is plain: "not be bypassed." This is a textbook reverse-option (insurance) structure: membership fees plus limited engineering cost far below the systemic risk of being bypassed. Visa stays proactive on dual tracks (TAP in October 2025, a CLI wallet tool in April 2026), while Mastercard and American Express merely hold named places with no proprietary protocol or public deployment. All three sent EVP-level executives to signal to Wall Street that they "haven't fallen behind," yet remain largely "troops not yet moved" at the deployment layer.

2.4 Business Extenders: AWS, Shopify, Adyen, Fiserv, PPRO, Microsoft, KakaoPay, thirdweb

This is the most pragmatic, least narrative-dependent group. They hold vast incumbent businesses and treat x402 as a natural extension or a pluggable add-on: if the trend takes off they hold a good place; if disproven, the core has no downside. They sort into three camps.

Cloud infrastructure (AWS, Microsoft): AWS launched the preview-stage AgentCore Payments in April 2026, using x402 as the default settlement component (200ms on Base), and unilaterally disclosed 169M payments in the first year — a natural extension of its Bedrock ecosystem. Microsoft is quieter: it joined with no public deployment, but its Copilot Studio agents are widely assumed to need x402 as a communication bridge.

Scenario and settlement gateways (Shopify, Adyen, Fiserv, PPRO): Shopify's bet is business-driven — a conviction that many orders will be placed by agents — and it may be the first to produce real throughput. Adyen, Fiserv and PPRO, dominating gateways, processing and cross-border rails, take "defensive adaptation," waiting for merchant demand to force the issue.

Regional rails and vertical tools (KakaoPay, thirdweb): KakaoPay marks the agent economy's penetration into APAC and aims to hold the regional payment rail; thirdweb, a Web3 dev-tools platform, bets on crypto-native developers' path dependence on its toolchain.

2.5 The Coordination-Layer Builder: Google

Google's position is the most distinctive and most aggressive. It joined the Foundation, but its ambition was never in moving money — it is to set the industry-wide rules and authorization layer above the payment layer, through its proprietary protocol AP2.

Base protocols like x402 only move money from A to B; they cannot verify whether an AI's identity is real, how much it was authorized to spend, or whether a high-frequency micro-transaction is compliant. AP2 tries to set industry-wide rules in this vacuum by defining identity verification, authorization and compliance. Once AP2 becomes the de facto authorization standard, it becomes the ecosystem's gatekeeper, and x402 degrades into an execution tool beneath it.

Google takes a seasoned "occupy first, build later" strategy: if AP2 fails, its place remains a defensive position; if AP2 wins, the seat lets it dictate how x402 and AP2 coordinate. The biggest hidden danger is factional splintering – AP2 and OpenAI's ACP overlap heavily at the coordination layer, and this "two-tiger rivalry" may slow the whole layer's convergence.

2.6 The Settlement Layer: Circle, Base

The Circle–Base combine occupies the most indispensable "settlement layer" position: it does not fight over upper-layer applications, but uses the "stablecoin + chain" architecture to own the settlement layer that traditional finance can't carry. The agent economy demands ultra-high-frequency micropayments and instant streaming settlement, with amounts as low as sub-cent – which the card networks' fixed gateway fees ($0.10–$0.30) and T+N cycles foreclose.

Circle (the issuance monopoly of digital fiat): as of end-April 2026, 99.8% of x402 transactions settle in USDC, proving absolute issuance dominance. Its Nanopayments support transfers as small as $0.000001, paired with the May 11 Agent Stack, aiming to make USDC the agent world's reserve currency.

Base (the infinite descent of marginal settlement cost): by mid-May, 95% of x402 volume ran on Base. Its batch-settlement technology, live May 13, drove per-transaction cost below $0.0001, "unfreezing" high-frequency sub-cent payments for the first time. For the settlement layer, success hinges on total on-chain GTV, not any single app.

2.7 Edge Challengers of the Settlement Layer: Solana Foundation, Polygon Labs

The Matthew effect of the settlement windfall is accelerating. Since Base has taken the lion's share, the Solana Foundation and Polygon Labs aim to grab more share before winner-take-all network effects fully harden.

Solana (aggressive share-grabbing): in x402's early stage Solana once drove ~65% of volume on high throughput and low latency. But as Base shipped batch settlement in mid-May, the balance shifted. Despite urgently deploying an x402 Facilitator to retain developers, Solana – lacking Coinbase's compliant network and deep USDC integration – faces enormous pressure holding share.

Polygon (passive fallback): an "elastic backstop" stance. x402 is deployed on Polygon, but it makes no aggressive share claims; its logic is "alternative option" – when high-load chains like Base or Solana suffer outages or fee spikes, Polygon's mature EVM-compatible network absorbs the overflow. For both, the risk is how fast the Matthew effect hardens, and Base's dominance is strengthening, not weakening.

2.8 Native Builders: Sierra, Merit Systems, Ampersend.ai

The native builders are the highest-risk control group. Unlike players with a traditional business generating cash, this group ties its products, valuation and financial survival entirely to the agent economy's growth rate – not a low-cost extension, but a one-way bet of extreme asset specificity.

Sierra: founded by Bret Taylor (former Salesforce CEO, OpenAI chairman), it provides the base platform to build and deploy enterprise agents. Its loop depends entirely on how fast enterprises deploy agents, with no traditional business to hedge. If the agent economy fails to cross the early-adopter chasm within 12–18 months,

Merit Systems and Ampersend.ai: typical native-toolchain builders, their revenue slope is locked to real transaction volume, forcing them to face an industry sitting in "early fog." For native builders, the risk structure is the most exposed to cyclical swings — neither the card networks' reverse-option lock-in nor the settlement layer's cost advantage — and they will be first to feel any growth shortfall.

PART III · WHERE THE LINES CROSS

Where the Lines Cross

> No single institution can swallow the entire agent-economy payment windfall on one endowment. The structure converges on "one core, two wings": Coinbase + Circle + Base as the core settlement layer, with Web2 incumbents integrating across identity/compliance and compute/distribution.

Web2 giants with customers and compute lack an on-chain reserve currency, while Web3 infrastructure with high-frequency lanes lacks merchant trust. Driven by settlement efficiency and commercial interest, the founders moved not toward a many-sided war but toward a deep contest of asset assembly and standard positioning around this "one core, two wings." This dense positioning raises expectations while planting the seeds for the fracturing of on-chain data.

3.1 The "Core Settlement Alliance + External Integration Camp" Structure

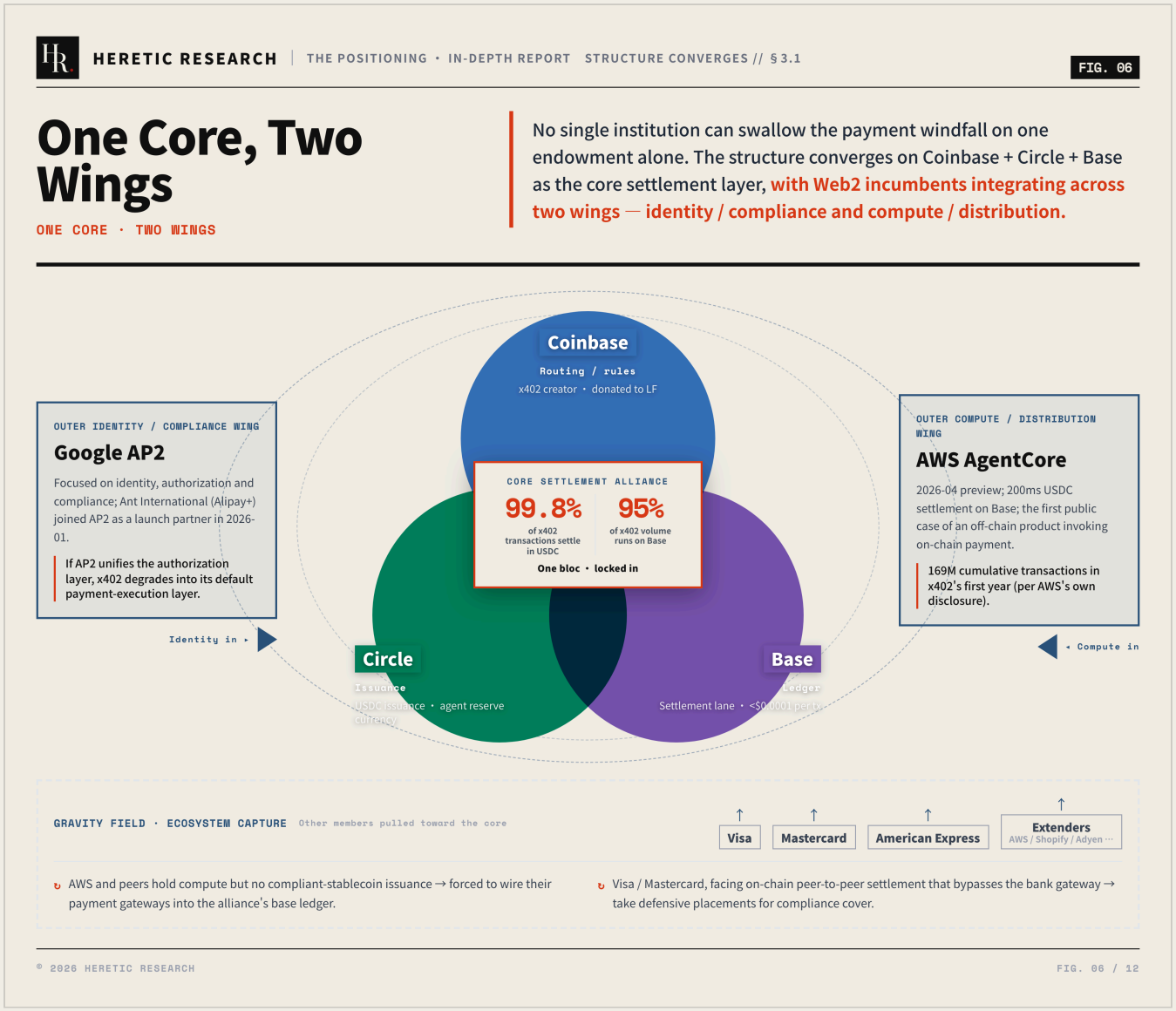

FIG. 06 — ONE CORE, TWO WINGS · SOURCE: HERETIC RESEARCH

Core settlement alliance: Coinbase + Circle + Base. Their confluence locks issuance, routing and the base ledger inside one bloc. Circle holds USDC issuance and, by binding natively to Base, drives per-transaction cost below $0.0001; Coinbase, as x402's creator, designed the rules so the standard fits USDC and Base natively. Every high-frequency settlement accrues as a network tax (gas) on Base, grows Circle's Treasury-reserve interest, and converts back into Coinbase's strategic chips in the Foundation.

This asset-specific loop produces a strong "ecosystem capture" effect: AWS and peers hold compute but no compliant-stablecoin issuance, and are forced to wire their gateways into the alliance's base ledger; Visa and Mastercard, facing on-chain peer-to-peer settlement that bypasses the bank gateway, take defensive placements for compliance cover.

External integration camp: on the application/compliance side, Google AP2 accesses the base protocol via standard compatibility – if AP2 unifies the authorization layer, x402 becomes its default payment-execution layer. On the compute side, AWS AgentCore moves toward the core via product integration: its April 2026 preview achieves 200ms USDC settlement on Base – the first public case of "on-chain payment invoked by an off-chain product." Once it moves from preview to GA and is replicated, x402's adoption curve expands from crypto-native developers into the enterprise-IT market.

3.2 The Great Data Gap: Volume Inflation Driven by an Arms Race

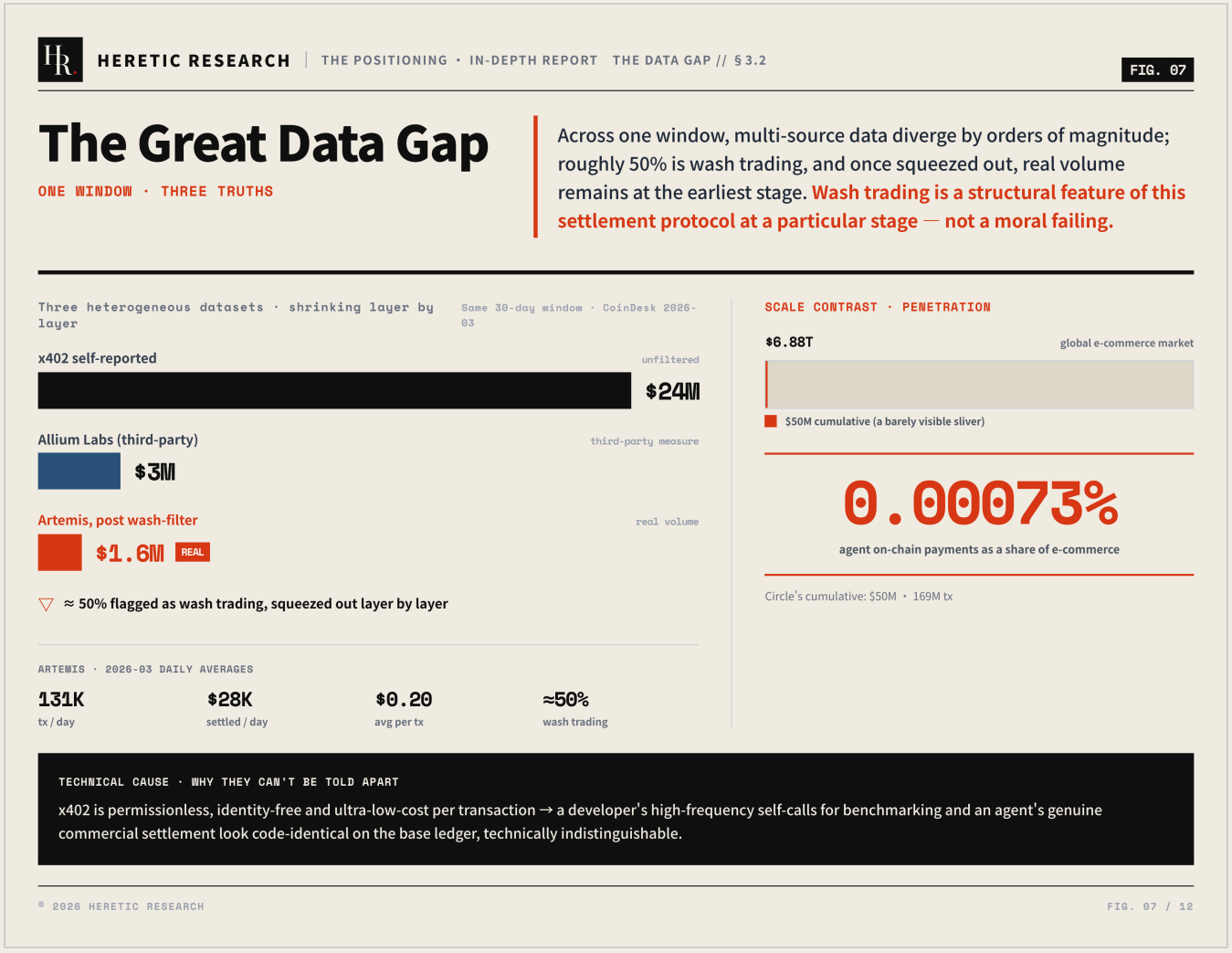

FIG. 07 — THE GREAT DATA GAP · SOURCE: HERETIC RESEARCH

In March 2026 CoinDesk disclosed three heterogeneous datasets around x402 within the same 30-day window: self-reported $24M, third-party Allium Labs $3M, and Artemis (after a wash-trading filter) just $1.6M – diverging by orders of magnitude. Circle separately disclosed $50M cumulative and 169M transactions. Artemis' daily data show 131K transactions settling just $28K, averaging $0.20 each, with ~50% flagged as wash trading.

This is not a methodology gap but a base-layer technical trait: **x402's design makes real commercial transactions and developer test/wash activity technically indistinguishable on the base ledger.** Permissionless, identity-free and ultra-low-cost, a developer's high-frequency self-calls and an agent's genuine settlement look code-identical. So at this stage, wash trading should be seen as a structural feature of the

Layered onto this, each founder's positional interest creates a motive to manufacture on-chain evidence – initiators need inflated data to establish standing, asset issuers need volume to expand USDC, application developers need data to meet VC benchmarks – summing at the settlement layer into heavily inflated fake volume. Our final read: **on-chain verifiable real volume is still at the earliest stage, but the commercial structure is essentially set.** Settlement assets keep concentrating into the "Coinbase + Circle + Base" core, and this structural-convergence signal has greater directional value than short-term swings in the book figure.

PART IV · WHERE CRYPTO STANDS

Where Crypto Stands

> Over the next 12–18 months, crypto cannot shake the mainstream-commerce core; it can only serve as a supplementary settlement layer for the edge blind spots traditional finance can't cover. The lower money rails are highly mature; the upper governance tools lag badly.

4.1 Which Use Cases Are Real Demand, Which Are False?

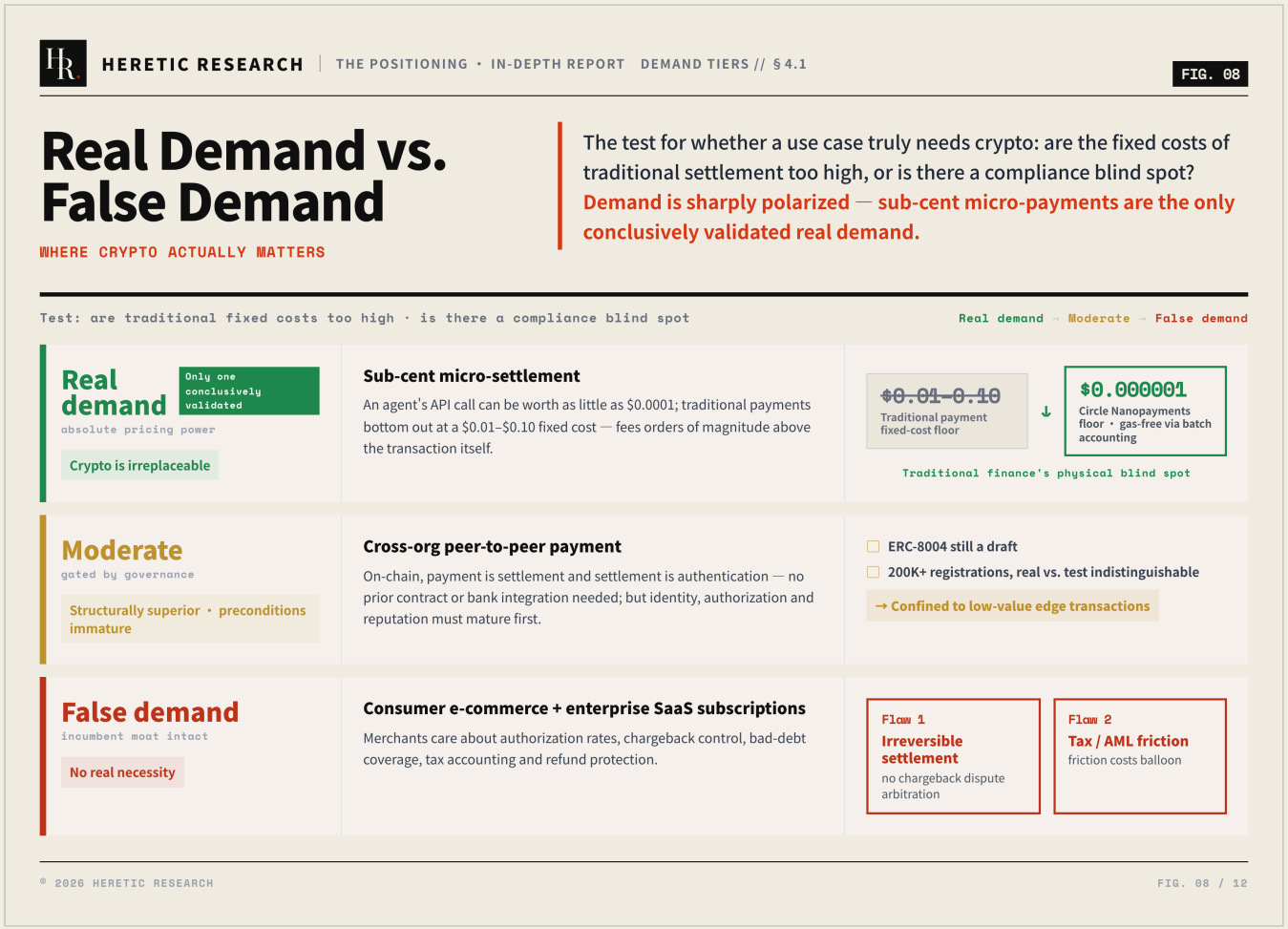

FIG. 08 — REAL DEMAND VS. FALSE DEMAND · SOURCE: HERETIC RESEARCH

The test for whether a use case truly needs crypto: are the fixed costs of traditional settlement too high, or is there a compliance blind spot? Demand is sharply polarized.

Sub-cent micro-settlement — the real-demand battleground where crypto holds absolute pricing power. Traditional networks carry a $0.01–$0.10 fixed-cost floor from fraud management, multi-tier splits and manual compliance; an agent's API call may be worth $0.0001, with fees orders of magnitude above the transaction. Circle's Nanopayments run as low as $0.000001 and gas-free via batch accounting — traditional finance's physical blind spot, and crypto's only conclusively validated, irreplaceable demand.

Cross-organization peer-to-peer payment — moderate necessity, gated by governance. On-chain settlement ("payment is settlement, settlement is authentication") is structurally superior to off-chain B2B; but it requires mature identity, authorization and reputation, and ERC-8004 is still a draft, with 200K registrations indistinguishable from test nodes. Until on-chain credit lands, it stays in low-value edge transactions.

"False" demand — consumer e-commerce and enterprise SaaS subscriptions. Merchants care about authorization rates, chargeback control, bad-debt coverage, tax accounting and refund protection, where Stripe, Visa and the banks have iterated for decades. Loading USDC into an agent wallet cuts no cost and brings two flaws: irreversible settlement (no chargeback) and surging tax/AML friction. So in e-commerce and SaaS, crypto's necessity simply does not hold.

4.2 Crypto Infrastructure Caps the Agent Economy's Ceiling

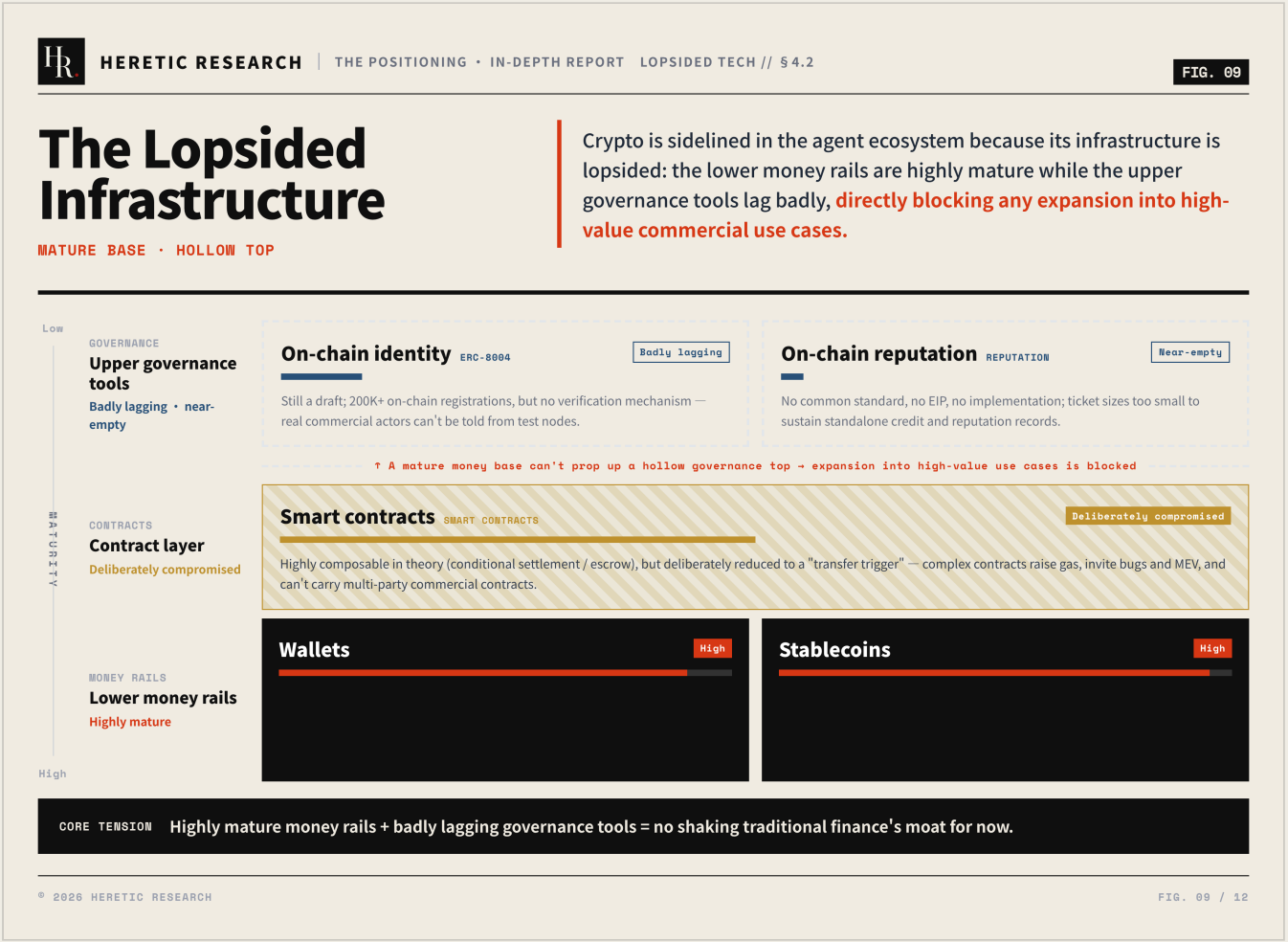

FIG. 09 — THE LOPSIDED INFRASTRUCTURE · SOURCE: HERETIC RESEARCH

Looking through five core components reveals badly out-of-sync progress. **Wallets and stablecoins (high maturity)** support edge micro-settlement: wallets let agents hold and pay autonomously, but most run within human-set limits where platform debits suffice; stablecoins hold a structural edge in cross-border, small, high-frequency cases (99.8% of x402 in USDC), but this mostly reflects crypto-native preference.

Smart contracts (deliberately compromised): highly composable in theory (conditional settlement, escrow), but reduced to a basic "transfer trigger" — complex contracts raise gas, invite bugs and MEV, and can't carry multi-party commercial contracts.

On-chain identity and reputation (badly lagging): the wound that locks high-value scenarios shut. ERC-8004 is still a draft, 200K registrations lack verification, and real accounts can't be told from test nodes; on-chain reputation is essentially blank — no common standard, no EIP, no implementation, and sub-cent tickets can't sustain credit scoring. "Mature money rails" plus "badly lagging governance tools" form the core contradiction, leaving crypto unable to shake traditional finance's moat within any foreseeable cycle.

4.3 Commercialization Cycle and Value Flow

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FIG. 10

Who Makes Money

ADOPTION ↑ ≠ TOKEN ↑

Rising adoption of an open protocol does not automatically translate into real token appreciation. Value capture is sharply fractured — economic value concentrates in the equity layer, where the compliance and ledger moats sit.

ACTOR	CORE MONETIZATION	CASH-FLOW TRANSMISSION	VERDICT · CERTAINTY CORE
Stablecoin issuer Circle	Reserve interest + mint/redeem fees; x402 transactions directly drive USDC circulation and float.	Monetized purely at the equity level, banked as corporate profit, unrelated to any crypto token.	Real capture · very high certainty — Value lands in company equity, not any token.
Base-layer L2 ledger Base	Sequencer fees; on batch settlement, captures the accounting fee on each micro-payment.	Realized as parent-company equity premium, booked into Coinbase's financials; a network token is still being explored.	Real capture · high certainty — But gas per tx is tiny, so absolute revenue is small.
External cloud providers AWS / Cloudflare	Cloud resource fees (traffic and compute); integrating x402 deepens customer stickiness.	Flows through traditional SaaS subscriptions / usage billing, becoming standard enterprise-IT spend.	Indirect capture · high certainty — No direct cut of settlement, but turns agent payments into a must-have cloud feature, like HTTPS.
Open-protocol layer x402 Foundation	None (Apache 2.0 open source — no token, no fees).	No cash-flow transmission at all.	Zero capture · pure technical standard — No matter how the protocol booms, it generates no "protocol revenue".
Agent-native tokens the sector at large	Varied forms, most with no common fee point; whether they monetize depends on each project's own design.	x402 adoption does not automatically reach the token layer; protocol boom ≠ token cash flow.	Adoption ≠ token · varies by project — Pure-narrative tokens with no real fee or revenue-share mechanism are especially fragile — but that alone doesn't condemn the whole sector.

BASELINE ANCHOR Over $321B in global stablecoin float underpins it · ~$50M cumulative volume, <0.1% of e-commerce · ≥50% wash trading, real endpoint revenue still opaque

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FIG. 10 — WHO MAKES MONEY · SOURCE: HERETIC RESEARCH

Bound by this ecological boundary, value capture is sharply fractured: rising open-protocol adoption does not translate into real token appreciation, and economic value concentrates in the traditional and chain-layer giants holding compliance and ledger moats. The absolute dominance of traditional finance forecloses any break upward into high-ticket core scenarios.

This locks value into the edge infrastructure layer: the base ledger earns only the sequencer's thin fee from batch settlement, while cloud providers deepen stickiness by integrating x402 – completing the loop of the clearest profit at the equity level of traditional companies. Worse, even in micro-settlement, the only real demand, the scale ceiling can't be technically validated: cumulative $50M is under one-thousandth of the global pool, and at least 50% is wash trading. Any agent-native token lacking a clear fee mechanism and driven by narrative alone will face a rigid valuation collapse when the technical fever subsides.

PART V · TRACKING SIGNALS

Tracking Signals

> This is only a static, point-in-time read. Any judgment, the moment it is written, begins to bear the risk of missing the move or being disproven. Rather than a final verdict, we anchor every core view to publicly trackable metrics over the next 12–18 months.

FIG. 12 — THE TRACKING MAP · SOURCE: HERETIC RESEARCH

This is a fully symmetric monitoring framework. The six confirming signals, once they cross their thresholds, establish the long-term infrastructure narrative; the four falsifying paths, if any is borne out, overturn most current assumptions. We put confirmation and falsification under the same yardstick for one purpose: to guard against blind spots that arise when a position is taken as a given. **Whether a view is worth holding depends on whether it clearly defines the conditions under which it fails.**

Within this symmetric game, the core downside risk comes from the "gray rhino" in FIG. 11 – Ant International's AMP protocol. The market widely holds the unexamined assumption that "agent payment equals crypto payment." Yet a side-by-side comparison of x402 and Ant International's AMP shows they barely overlap in footprint or path: x402 lays a new on-chain track from zero to serve supply-side developers; AMP grafts onto the existing network of a mobile wallet (Alipay+), driven by APAC consumers and merchants. While x402 is still validating 169M cumulative transactions and 170+ entities at small scale, AMP is backed by 1.8 billion user accounts and 150 million merchants. On micropayment capability and card-network cooperation, AMP has essentially achieved a comparable – or, in dynamic risk control (KYA), even more advantageous – alternative.

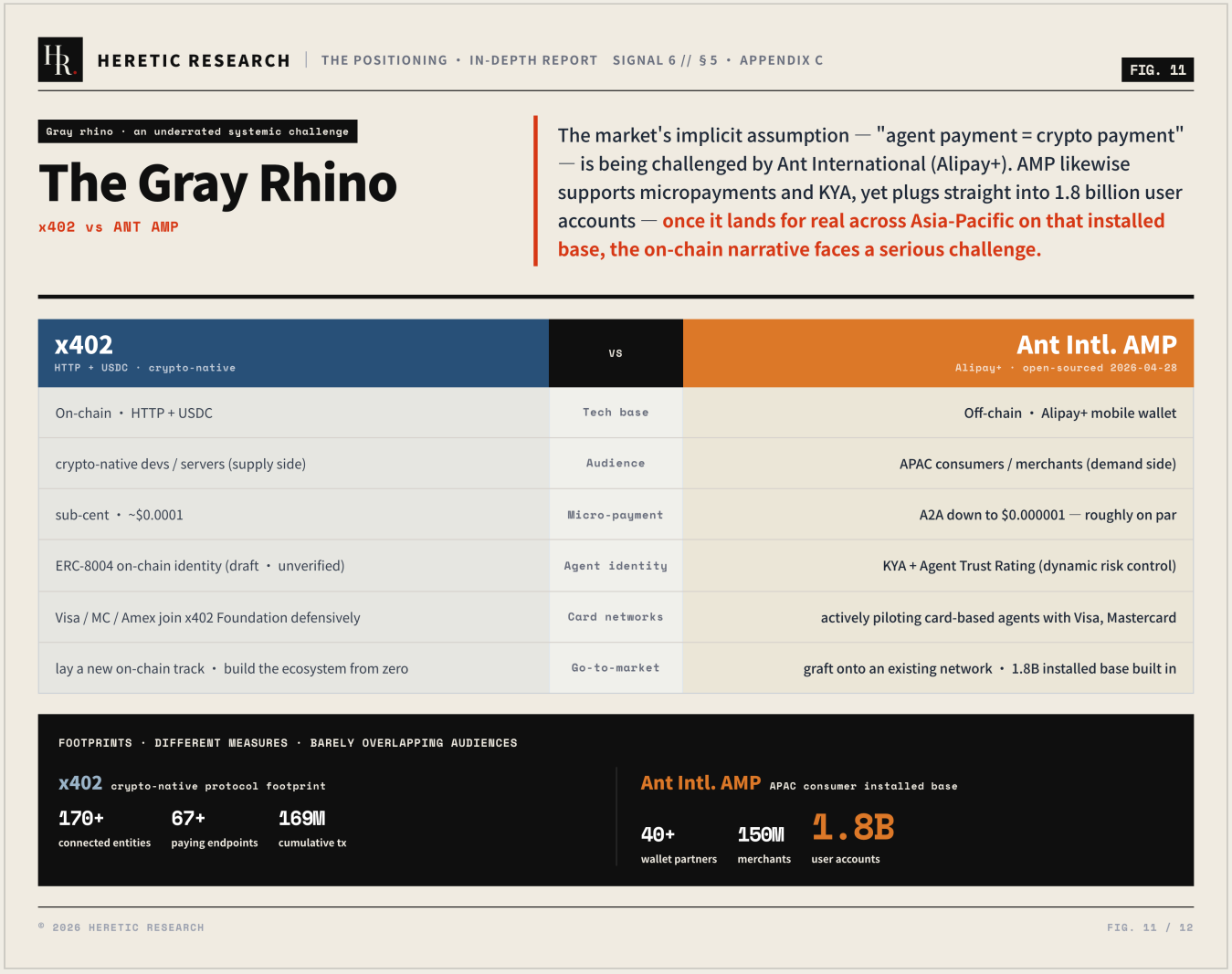

FIG. 11 – THE GRAY RHINO · SOURCE: HERETIC RESEARCH

This means that once AMP lands for real across APAC on that base of 1.8 billion users, the on-chain narrative faces systemic pressure to restructure. This is precisely the trip-wire signal we must monitor among the falsifying paths. Note that each signal's current position does not matter; they are qualitative, point-in-time assessments. What is decisive is the moment a threshold is crossed — before that, every conclusion stays open.

Listing these stringent falsification conditions is by no means pessimism about x402. On the contrary, it is proof that the industry is still at a very early, exploratory stage. Top-tier infrastructure is never born amid smooth praise; it is forged in boundary friction with incumbents and in the market's most genuine scrutiny and self-correction. Precisely because we hold a considered optimism about this industry's long-term potential, we choose to dissect its future on a foundation that respects the real data.

Acknowledging uncertainty is the precondition for staying sharp. Facing the positional contest between x402 and the TradFi behemoth, and the ten signal lines extending over the next 12–18 months, we will keep tracking and recalibrating as critical observers and fellow travelers. This report is the first installment in a research series on the crypto × AI intersection; further deep-dives will follow. HR will always stand on the side of the real data obscured by popular narrative.