

StockYield Technical Litepaper v1

A Creator Launchpad for Programmable Stock Strategies

V1 Research Concept — Work in Progress

Abstract

StockYield lets one individual launch a token immediately and give its market a financial program that develops as it earns real revenue. A creator can publish CAT, select an NVDA/SPY stock core and a TSLA call, and commit part of their future trading fees to acquiring those assets. CAT begins trading on Uniswap v4. The stock core activates when its funding and execution conditions are satisfied; an optional call can enter later, without delaying the token or imposing an expiry on it.

The architecture separates three objects: the fixed-supply project token P, the permanently mandated LaunchLiquidityVault, and the claim-bearing strategy share Q. P/WETH provides the initial market. Fee-funded purchases create Q and a separate P/Q market. Q's portfolio can hold stock tokens, cash and admitted derivatives under a published mandate. A derivative expires; the creator token and market do not.

The signature capability is a creator-authored, funded payoff mandate: financial composition, fee commitment, ownership and lifecycle are specified together. This paper defines the capital boundaries, gross-quote fee calculation, fair subscription rule, option funding and operational conditions needed to make that capability implementable.

1. One creator, one continuous launch

The creator supplies a name, image and idea, selects reviewed financial components, and signs an economic manifest. Manual templates and AI-assisted configuration produce the same typed terms. A short request—"CAT with an NVDA/SPY core and an optional TSLA \$300 call"—is sufficient to begin configuration. The system must still resolve addresses, position sizes, fees, funding, counterparties and settlement before spending assets.

The launch interface distinguishes **market open**, **stock core accumulating**, **stock core active**, **option pending**, and **option active**. "Pending" is not backing. A market can remain open while its financial budget is small, a quote is unavailable, or an optional instrument is omitted. There is no deadline by which CAT must attract enough buyers to survive.

Every P launch has exactly one billion tokens, minted once, with no later mint or burn authority. The reference allocation is 500 million for initial liquidity, 150 million reserved for the structured market, 100 million creator vesting and 250 million locked treasury. The fixed-billion rule applies to P; Q share supply changes only through funded issuance and valid redemption. The manifest fixes vesting and permitted uses. These allocations are token inventory; none is cash until an independent participant actually pays for it.

The creator selects an additional fee and commits fractions of their own fee entitlement to financial liquidity and, optionally, holder rewards. Those commitments become enforceable asset ownership when fees are collected. A creator cannot withdraw the same receipts they have committed to a portfolio or already credited to reward recipients.

2. Ownership before financial expression

Object	Owner and permitted use	What it does not confer
P	Its token holder; transferable project exposure	Automatic NAV redemption, LP ownership or corporate dividends
Initial P/WETH position	LaunchLiquidityVault, restricted by the launch mandate	A creator withdrawal account or a subscriber refund pool
Accumulated structure fees	LaunchLiquidityVault when irrevocably earmarked	Simultaneous withdrawable creator income
Q	Its share holder; pro-rata net strategy assets under stated exit rules	Guaranteed cash liquidity or protection from strategy losses
P/Q position	LaunchLiquidityVault for its deposited inventory	Direct ownership of the same Q backing by all P holders
Allocated rewards	Identified eligible recipients through RewardEscrow	Future option capital available to the manager
Writer collateral	The admitted series, for its derivative obligation	Launch liquidity, trader margin or StockYield revenue

The launch vault has permanently restricted purposes. Its principal remains dedicated to the designated markets. Bounded repositioning or recovery returns assets to that same mandate. Arbitrary creator transfers are prohibited. Independently supplied LP positions retain their own owners and withdrawal rights.

A Q share and the assets backing it are counted once. An LP holding Q exposes that share inventory to the P/Q exchange rate. The vault cannot count its P/Q LP mark as independent external collateral and also count the full Q backing as separately available investment capital.

The financial ownership path is:

trader-paid fee → fixed recipient allocation → creator's committed portion → LaunchLiquidityVault → actual portfolio assets → Q → designated P/Q liquidity.

Every arrow after the allocation requires an actual transfer, executed purchase or properly priced share issuance. A database entry or expected future trade creates none of these assets.

3. Immediate v4 liquidity without invented WETH

The initial market is a conventional concentrated P/WETH pool. Its reference position starts entirely in P at a range boundary. Let z be currency1 per currency0, with square-root bounds a and b and position liquidity L . Inside the range:

$$x = L(1/\sqrt{z} - 1/b), \quad y = L(\sqrt{z} - a).$$

At the lower bound the position holds currency0 only; at the upper bound it holds currency1 only. If P is currency0, initialize at the lower bound and WETH purchases move the price upward. If P is currency1, initialize at the upper bound and WETH purchases cross that tick into the range moving downward. Address ordering, token decimals and initializable ticks determine the raw implementation. [Uniswap liquidity mathematics](#), [single-sided liquidity](#).

Before the first WETH purchase there is no WETH bid inventory. Buyers supply it. Sellers can recover only actual available quote assets at executable prices. A live token contract does not guarantee a two-way market at every size.

For an illustrative P-price range of $p_0 = 0.000000004$ and $p_1 = 0.000000016$ WETH/P, selling 500 million P entirely through the range produces:

$$W_{\text{principal}} = 500,000,000 \sqrt{p_0 p_1} = 4 \text{ WETH}.$$

This is **LP principal received through trading**. Fees enter a separate account and do not include these four WETH. With a 1% gross-quote tax and zero core fee, buyers provide approximately 4/0.99 WETH to deliver four WETH to the position; the difference is separately collected tax. Actual tick rounding changes the benchmark slightly.

The range may finish entirely in WETH; further buys then need additional offered P liquidity. Sells can move inventory back. Any extension or repositioning must follow the original bounded mandate. There is no campaign expiry, but liquidity can become inactive, exhausted or economically unattractive.

4. One fee policy, two currencies of operation

Let $e \in [0, 0.05]$ be the creator's optional additional rate. Total launch tax is:

$$\tau = 0.01 + e, \quad r_C = 0.007 + e, \quad r_{SY} = 0.003.$$

The 1% base is split 70% creator and 30% StockYield; the additional 0–5 percentage points belongs entirely to the creator. Rates are fixed at launch. The charging base is gross quote flow: WETH in P/WETH, Q in P/Q. Q receipts are actual shares, not already realized WETH or dollars.

The reference pools charge zero ordinary LP fee. Their initial LP is permanently mandated capital, so an independent LP fee is not promised to third-party liquidity providers. The signed core protocol-fee ceiling is also zero. If the Uniswap controller enables a directional core charge, the hook rejects new swaps in the affected managed pool. This explicit compatibility gate does not cancel Q ownership, rewards, primary settlement or permitted liquidity exits.

Let G be executed gross quote amount, and let γ and ρ be the creator's fixed structure and optional reward fractions, with $\gamma \geq 0$, $\rho \geq 0$ and $\gamma + \rho \leq 1$. Ignoring raw dust:

$$\begin{aligned} F &= \tau G, & S &= 0.003G, & C &= F - S, \\ B &= \gamma C, & R &= \rho C, & I &= (1 - \gamma - \rho)C. \end{aligned}$$

Thus $F = S + B + R + I$. StockYield receives S ; B funds structure; R funds rewards; I is withdrawable creator income. Conversion and service expenses have an identified payer within these allocations. No management or performance fee is charged by the reference Q mandate.

For example, at $e=0$ and $\gamma=1$, four WETH of structure budget requires approximately $4/0.007=571.43$ WETH gross quote flow before costs. The token may trade for any duration without reaching it. Raising e changes both revenue per trade and trader willingness to use the pool; constant volume is not assured.

5. Exact fee arithmetic in all four swap modes

Use integer denominator $D=1,000,000$ and $T=10,000+\text{extraPips}$. The tax and its inverse are:

$$\begin{aligned} F(G) &= \lceil GT/D \rceil, & N(G) &= G - F(G) = \lfloor G(D - T)/D \rfloor, \\ G(N) &= \lceil ND/(D - T) \rceil, & F &= G(N) - N. \end{aligned}$$

This consistent convention rounds tax upward by less than one raw quote unit. Reject a positive request whose post-tax core amount is zero. StockYield receives $\text{floor}(G \times 3,000/D)$; the creator receives the remaining collected tax, including designated rounding dust. Round B and R down from the creator amount; assign the residual to I so accounting exhausts each receipt exactly.

User action	Core quote requirement	Hook delta
Buy P with exact gross quote G	Input $N(G)$	beforeSwap specified $+F(G)$ changes $-G$ to $-N$
Buy exact P amount	Core computes quote input C	afterSwap unspecified $+ [G(C) - C]$
Sell exact P amount	Core produces gross quote G	afterSwap unspecified $+F(G)$
Sell for exact net quote N	Output $G(N)$	beforeSwap specified $+ [G(N) - N]$ changes N to G

The hook identifies quote by the manifest's currency address, not by assuming currency0. Specified-currency mapping depends on exact-input/output mode and zeroForOne. Core adds the beforeSwap specified delta to the requested amount, then subtracts the combined hook delta from the caller's core delta. Tax is recognized once. [Pinned v4 Hooks.sol](#).

V1 uses **full-fill-or-revert**. AfterSwap verifies that the actual core specified delta equals the adjusted request. A range limit, insufficient depth or transfer failure that prevents completion reverts the entire trade and fee

accrual. This avoids charging a precomputed specified-currency fee on an incomplete fill. A router can submit a separately quoted smaller exact trade; it cannot retain a partial execution of the rejected request.

At zero impact, gross 100 produces net 99 at 1% and net 94 at 6%. Receiving net 100 requires 101.010101 or 106.382979. Two equal fee-bearing hops retain $(1-\tau)^2$: 98.01% or 88.36%, before gas or other venue charges. The latter is a serious commercial cost, even when the creator has an attractive financial program.

The hook mints attributed ERC-6909 PoolManager claims for the actual tax; the mint debit offsets the hook credit created by its returned delta. A bounded processor later burns those exact claims and takes the underlying currency. Claims and redeemed assets are successive representations of one receipt. Every unlock finishes with zero transient balances. Pool/quote/recipient identities remain attached to every receipt. Research, conversion, broad payouts and option execution occur outside swaps. Flash accounting, ERC-6909.

6. Activating the stock core

Structure fees accumulate under LaunchLiquidityVault's ownership. Activation requires admitted stock-token identities, exact input ceilings, actual minimum received assets, a priced service budget and sufficient reserved P for liquidity. A target is an executable acquisition budget, not a market-cap target. An unavailable option does not prevent acquiring the stock core.

The first funded stock/cash portfolio issues Q to LaunchLiquidityVault. New pool inventory must satisfy $P_{\text{seed}} \leq \text{reserved P}$ and $Q_{\text{seed}} \times \text{reliable Q value}$ approximately equals $P_{\text{seed}} \times \text{an admitted market reference for P}$. A thin, immediately manipulable spot quote is insufficient. For example, at $P = 0.000000016$ WETH and $Q = 0.004$ WETH, the 150-million P reserve matches 600 Q, worth 2.4 WETH. If 1,000 Q were funded, 400 remain separately held by LaunchLiquidityVault; forcing all 1,000 against 150 million P would create an unsupported opening price. Required reference depth, observation period and price bounds are admission fields. The vault pairs a bounded quantity of those Q shares with its separately reserved P inventory. This creates **a new P/Q pool**. The original P/WETH pool remains; its currency cannot be edited into Q.

PoolKey fixes the sorted currencies, fee identity, tick spacing and hook. Its hash determines PoolId. A hook may serve both pools, but one pool's receipts or obligations cannot consume the other's balances. PoolKey, PoolId.

New Q received for a later funded subscription can remain in LaunchLiquidityVault. At the example prices, another 36 Q would need nine million additional P to enter balanced liquidity; already used P cannot be counted again. The optional call nevertheless enters the same Q portfolio and therefore changes the assets represented by existing Q already in the pool.

Q's stock/cash portfolio is managed by its original mandate. Its holdings may change without changing the Q address. A static basket receipt alone does not provide this management. Adding a call requires the StrategyVault and an admitted InstrumentAdapter, rather than a change to ordinary AMM mathematics.

7. Fair subscription before adding risk

Maintain separate values for actual asset quantities, indicative NAV, executable closeout proceeds, expenses, reserved exercise cash and beneficiary liabilities. Free cash excludes encumbrances. A reserve remains an asset, but cannot simultaneously finance rewards or another exercise obligation.

A P/Q tax receipt transfers existing Q; it does not increase the assets inside Q. Redemption removes backing and consumes the corresponding shares. Redeeming and redepositing that same backing is not net new external capital. Fresh WETH-market receipts, or cash actually paid by an independent buyer for Q, can fund the new-cash example below; any sale needs a funded executable bid.

When Q holds only reliably valued stock and cash, an admitted subscription window may accept new actual cash C. With pre-subscription net assets A and S shares:

$$\Delta S = \left\lfloor \frac{CS}{A} \right\rfloor.$$

New shares go to the contributing LaunchLiquidityVault in exchange for its contribution. P holders acquire no additional direct portfolio claim from this issuance. Asset admission, conversion costs and liabilities are reconciled before A is fixed. Any deposit expense borne by the entrant reduces its effective C; a shared expense must be explicitly authorized as shared.

Require $A > 0$ when existing share supply is nonzero, and reject a deposit that rounds to zero new shares. An insolvent series cannot erase old claims by resetting its share price. The rule requires reliable pricing, not merely a returned oracle value. Reject stale, non-executable or inconsistent stock references; prevent same-window cash flows from entering both the numerator and pre-deposit NAV. Use a signed batch cutoff, reconcile pending withdrawals first, and process admitted entrants at the same state. Before redemption allocation, escrowed Q remains in participating supply and bears portfolio changes. At allocation, remove those Q units from participating supply atomically with reserving their exact payout liability; subsequent net assets exclude that liability. Never divide assets net of a reserved redemption by a share count that still includes its owners. Source restrictions, actual receipts and share rounding are part of the transaction bounds.

After the new subscription, the vault can buy the call within its original asset-weight, premium, reserve and servicing limits. **Primary issuance closes while live options make fair pricing unreliable.** P trading continues, and existing Q can trade secondarily where permitted and funded. A secondary quote can diverge from NAV.

Q holders may request and escrow redemption while an option is live; fulfillment follows an admitted accounting window after settlement or close. Requested shares cease being transferable and remain exposed until the stated allocation checkpoint. Fulfilled requests receive their share of actual realizable assets or admitted in-kind holdings, less their properly allocated costs. No payment is fixed from an optimistic model while another holder bears the liquidation shortfall. ERC-4626/7540 provide useful interface conventions; they do not supply valuation, counterparties or multi-asset settlement. [ERC-4626](#), [ERC-7540](#).

8. A call added from \$360 of earned fees

Consider a synthetic Q portfolio with $A = \$10,000$ and $S = 1,000$ shares: \$6,000 NVDA, \$3,000 SPY and \$1,000 cash. NAV is \$10 per share. The original mandate permits at least 80% stock value at the admission checkpoint and a premium allocation below 5%; it does not require every new contribution to reproduce the original weights.

LaunchLiquidityVault then delivers **360 actual USDC**, obtained from its committed fees. Assuming reliable stock values and USDC at dollar parity, fair subscription mints 36 Q. Total contributed capital is now \$10,360 across 1,036 shares. The new cash funds a \$50 call premium, a separately reserved \$300 strike payment and \$10 of execution/servicing cost. The original \$1,000 cash is not reused as the new contribution.

Term	Fully specified hypothetical example
Underlying	One admitted TSLA stock-token unit; exact address and share multiplier required
Position	Purchased physical call; one whole-token lot
Strike and premium	300 USDC strike; 50 USDC premium; ordinary six-decimal USDC assumed
Writer backing	One actual TSLA token escrowed independently before the long is delivered
Purchase/write cutoff	Before 17 October 2026, 20:00 UTC, under a firm unexpired quote
Exercise window	18 October 2026, 20:00 UTC inclusive to 19 October 2026, 20:00 UTC exclusive
Maximum authorized service cost	10 USDC, funded separately from premium and strike
Reference instrument status	Bespoke hypothetical series; no live venue, quote or deployment asserted

After purchase and cost, stock assets remain \$9,000, cash is \$1,300 including the \$300 exercise reserve, and the call's acquisition cost is \$50. Net assets at cost are \$10,350. A marked option gain is not yet distributable proceeds.

If the call sells to an independent buyer for an executable 200 USDC, terminal assets are \$10,500. Alternatively, exercise pays 300 USDC and receives a TSLA token worth an illustrative \$500, producing the same \$10,500 mark; that becomes cash only if a sale actually executes. If the call expires worthless, assets are \$10,300. Against \$10,360 contributed, these are +\$140 and -\$60. All 1,036 Q shares participate pro rata. Neither the 300% option gain nor its loss is the percentage return of the whole market.

October 18, 2026 is a Sunday; the example uses bespoke onchain terms, not a claimed listed-equity expiry. Current StockYield option documentation requires 18-decimal underlying and settlement assets, and its described router requires WETH. A conventional six-decimal USDC strike therefore needs a new reviewed

integration; labeling a WETH strike “\$300” would not implement these terms. StockYield option specification.

9. Expiry changes the portfolio, not the token

The market and portfolio have separate state machines:

MARKET_OPEN → MARKET_OPEN while demand and usable liquidity exist.

CORE_ACCUMULATING → CORE_ACTIVE → SUBSCRIPTION_WINDOW → OPTION_ACTIVE → SETTLEMENT → CORE_ACTIVE.

Q's mandate fixes eligible replacements and spending caps. A call that becomes unavailable before purchase stays unpurchased; cash or the stock core remains. A different expiry, strike or risk requires an originally authorized replacement rule or a new mandate. The creator cannot silently substitute leverage because a quote disappeared.

Before expiry, a bounded quote service seeks firm bids. Selling the long, exercising it and selling delivered stock are distinct transactions. Exercise requires reserved strike cash, an actionable whole lot, eligible delivery and a live window. A sale may preserve time value that early exercise destroys. When no bid exists, exercise is allowed only under the precommitted value/cost rule and verified operational conditions.

A missing reference cannot be repaired by inventing a price. Permissionless callers may invoke the bounded fallback when its checks pass. If the token blocks delivery or nobody executes in time, the call can lose all value. Stock and cash claims remain; unrelated markets and rewards do not expire with that instrument.

Frozen assets enter separate recovery tranches. Claiming healthy assets does not erase valuable blocked rights. Each later recovery preserves original ownership units and independently consumed claim records. No unclaimed-asset timeout transfers ownership to a creator or StockYield.

10. Optional holder distributions

Ordinary P holding alone earns no promised distribution. If $\rho > 0$, the creator elects prospective weekly opt-in staking. A stake committed before the epoch cutoff remains locked for that epoch and receives a fixed share of that epoch's allocated reward receipts. Late entry applies to the next epoch. Selling unstaked P transfers future token exposure, not already credited reward rights.

The manifest excludes pool custody, launch-vault inventory, treasury and unvested creator inventory; other exclusions are explicit. No swap hook iterates over holders or pretends to observe transfers on every venue. PoolManager singleton balances do not become one giant reward beneficiary. Claims use accumulated per-epoch, per-currency amounts and bounded per-account records. An epoch with no eligible stake carries its reward assets to the next nonempty epoch in the same escrow; it cannot redirect them to trading risk, creator income or protocol revenue. Rounding residues stay in the reward escrow under that rule.

By default recipients own the actual allocated quote assets. A selected stock-reward form requires an actual purchase at bounded cost before that stock amount is credited. Allocated Q is not guaranteed instant cash. Missing conversions leave the original entitled asset available under the declared policy. Minimum claims, rounding dust and blocked-recipient recovery are committed; no future option may reclaim a credited reward.

11. Liquidity and commercial limits

Q performance, LP performance and P performance are different. For a fee-free, full-range constant-product position with initial value V_0 and independent price factors p and q :

$$V_{LP} = V_0 \sqrt{pq}, \quad V_{hold} = V_0(p + q)/2,$$

$$V_{LP} - V_{hold} = -\frac{V_0}{2}(\sqrt{p} - \sqrt{q})^2.$$

This benchmark follows inventory rebalancing; concentrated ranges, fees, external cash flows and managed Q require their actual position accounting. It is not a fee to add again to a loss-versus-rebalancing estimate. A stock call does not automatically hedge the P/Q ratio. Q can rise while the pool sells it into falling P.

Routers select executable outcomes after tax, impact, gas and permissions. P/WETH may remain the preferred route. A P/Q pool requires real Q acquisition and exit paths; no Q oracle creates them. Multiple pools share P risk and can fragment depth. The product's financial expression must be valuable enough to justify its route costs.

At gross quote volume V , StockYield earns approximately $0.003V$ in quote assets. With conversion/realization loss fraction k and actual residual servicing cost C , a simple operating break-even is $V^* = C/[0.003(1-k)]$. Q received while redemptions are closed is balance-sheet inventory, not cash paying current invoices. No trading means no new fees; insufficient earmarked funds means no new risk. Existing funded rights survive independently of new launches.

12. Contracts, operations and admission

LaunchFactory enforces fixed supply and admitted templates. ManifestRegistry commits canonical economic terms and signed amendments. LaunchLiquidityVault owns designated positions and fee commitments. StrategyVault issues Q and maintains its assets, liabilities and subscription windows. Approved InstrumentAdapters hold precise position identities. LifecycleController advances financial states. MarketHook verifies pool actions and collects fees. FeeProcessor converts or assigns actual receipts. RewardEscrow preserves entitled payouts.

Pool callbacks accept only PoolManager, validate original parameters and check full execution against the adjusted request. Context is per call and pool; no global scratch balance can mix launches. The hook does not initiate its own swaps, since core skips callbacks for a hook calling itself. Broad external execution, payouts and oracle-dependent exercises remain outside user swaps. Keys, approvals and destinations are bounded; the creator supplies no arbitrary executable code.

The backend uses durable idempotent jobs, canonical asset identities, typed AI suggestions, deterministic calculations and replayable event indexing. Reorg/finality handling and onchain reconciliation precede claims or notifications. Keepers receive bounded compensation from allocated service budgets. Monitoring covers stale inputs, failed quotes, stranded collateral, insufficient strike cash, fee reconciliation and missed windows. Operator loss may interrupt service; it must not authorize confiscation.

The proposal pins periphery `dce236d4e2057422d0791d9a973a58765eb46f65` and its core dependency `59d3ecf53afa9264a16bba0e38f4c5d2231f80bc`. Deployment correspondence, token permissions and router behavior still require reproduction. Source code, a deployed address, an oracle and a funded executable market are distinct states.

Issuer terms also constrain admission. Robinhood's primary documentation describes Stock Tokens as debt securities providing economic exposure rather than beneficial ownership of underlying corporate shares, with restrictions on acquisition and recipients. Q and reward wrappers do not remove those conditions. Instrument, creator, counterparty and recipient eligibility need specialist review for the actual offering. [Issuer documentation](#).

13. A payoff language with funded boundaries

Direct v4 launches, transferable fee rights, managed portfolios and options all have precedents. Flaunch documents v4 launch mechanics and creator revenue streams; Pons describes stock-quote launches and fee conversion. StockYield's differentiation is the integrated capability to open a creator market, commit actual fee rights and develop a funded financial portfolio with explicit share ownership and lifecycle. No worldwide-priority claim is necessary. [Flaunch lifecycle](#), [Pons v2](#).

The same composer can later admit covered NVDA upside that purchases TSLA convexity, a capped relative-performance claim, or a payoff on offsetting stock moves. These are different economic bets. A capped ratio claim $M \cdot \text{clip}(R/k, 0, 1)$ requires buyer premium and independent writer collateral M . A paid spread requires its purchased long and collateralized short obligations. A correlation-like label cannot replace a precisely defined observation rule. Each extension needs firm pricing, settlement, basis analysis and an operating budget before admission.

The smallest complete pilot opens the one-sided market, separates traded principal from collected tax, credits the exact creator/StockYield allocation and funds a real stock core. It then demonstrates a fairly priced \$360-equivalent subscription, a winning call, a worthless call, asynchronous Q exits and isolated optional rewards. It must also show zero-volume continuity, a stale-data refusal, full-fill rejection without retained fees, and recovery when an operator disappears. Passing arithmetic is necessary; contract tests, counterparties and end-to-end execution must establish the rest. Existing obligations must be honored from existing assets, regardless of future buyers.