# Pool Junky (PJ) Whitepaper

## DeFi Yield Optimizer on Flare Network

**Version 2.4 | January 2026**

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# Executive Summary

Pool Junky (PJ) is a Flare-native DeFi protocol designed to solve the fundamental trust gap in copy-trading and managed yield strategies. Using five specialized AI agents (Optimus, Execution, Aristotle, Pacioli, and Van Gogh) integrated with Flare's enshrined FTSO oracle, PJ enables fair liquidity pooling, synchronized exits, and transparent yield distribution while protecting against whale manipulation and operator exit-scams.

**Key Innovation**: Panic Button—a participant-controlled emergency circuit breaker that triggers pro-rata refunds through Van Gogh terminal interfaces, with governance safeguards (Aristotle + Pacioli verification).

**Target Market**: Retail traders ($1K–$100K positions), institutional yield farmers, and risk-aware DeFi participants seeking protection against copy-trading rug pulls and operator misbehavior.

**Network**: Flare (Chain ID 14) | **Total Supply**: 1B PJ | **Initial Circulation**: 60% (LP + TGE)

*Note: Initial 60% circulation includes 40% immediate liquidity via SushiSwap LP and 20% to early participants (TGE), ensuring deep pools and trading volume from day one while vesting the remainder for protocol sustainability.*

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# Problem Statement

## The Copy-Trading Trust Crisis

Current DeFi yield protocols suffer from asymmetric information and operator risk:

1. **Exit Scams**: Managers accumulate assets, then liquidate positions at market peaks before participants exit, dumping on retail investors.
2. **Slippage Exploitation**: Operators time exits to maximize personal gains, ignoring participant thresholds and losses.
3. **Black-Box Strategies**: Yield sources (farming APY, staking, arbitrage) lack transparent verification; participants cannot audit claim accuracy.

4. **Whale Manipulation**: Large holders front-run exits or use leverage to trigger stop-losses, extracting value from smaller positions.

5. **Single-Point Failure**: Centralized decision-making by operator means no recourse if judgment is poor or malicious.

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# Solution: Pool Junky Architecture

## Core Design Principles

1. **Synchronized Exits**: All participants exit simultaneously on pre-defined conditions, eliminating timing advantage.

2. **AI Verification**: Five specialized agents verify every transaction, oracle price, and operator action before execution.

3. **Operator-Proof Vaults**: Panic Button allows any participant to initiate pro-rata refunds, even without operator consent.

4. **Transparent Fees**: All fees calculated on-chain by Pacioli (P&L agent), verified by Aristotle (oracle agent), and displayed in Van Gogh (UI agent).

5. **Staking-Weighted Governance**: Token holders vote on treasury allocation, strategy approvals, and fee adjustments; voting power scales with lock duration.

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# Five AI Agents

## 1. Optimus (Vault Guardian)

**Role**: Enforces synchronized exits and coordinates participant refunds.

**Responsibilities**:

- Monitors vault health (collateral ratios, liquidation thresholds).
- Detects operator misbehavior (unauthorized exits, overspending).
- Triggers Panic Button via multi-signature threshold (25% of active participant terminals).
- Executes pro-rata distribution without operator approval.
- Prevents double-spending and reentrancy attacks.

**Integration**: Solidity smart contract + Flare EVM execution layer.

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## 2. Execution Agent (O/O-Named Strategy Router)

**Role**: Routes capital to yield sources and manages multi-strategy execution.

**Responsibilities**:

- Selects optimal yield venues (SushiSwap LP, FTSO staking, FAsset farming, SparkDEX, Kinetic, Sceptre, Enosys, custom protocols).
- Rebalances positions based on Aristotle price verification and Pacioli P&L recommendations.
- Executes participant entry/exit orders without operator discretion.
- Prevents slippage exploitation via atomic swaps and MEV mitigation.
- Logs all transactions for Pacioli audit trail.

**Integration**: JavaScript/Python off-chain agent (Enosys/Fors custom configuration).

**Key Integrations**: SparkDEX (swaps), Kinetic (lending), Sceptre (markets), Enosys (synthetics), FAssets/FXRP (bridging), FTSO/FDC (oracles). Custom protocols added via O/O governance.

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# 3. Aristotle (FTSO Oracle Verifier)

**Role**: Validates all prices and outcomes via Flare's enshrined oracle.

**Responsibilities**:

- Fetches XRP, FLR, SGB, and custom token prices from FTSO directly.
- Compares Execution agent routing prices against oracle; flags deviations >2%.
- Approves vault liquidations only after 3-block confirmation + secondary oracle check.
- Provides cryptographic proof of price for audit trail (State Connector integration).
- Prevents oracle manipulation by requiring 66%+ collator consensus.
- Double-checks all Panic Button refund calculations before distribution.

**Integration**: Flare FTSO API + State Connector smart contract module.

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# 4. Pacioli (Accounting & P&L Agent)

**Role**: Tracks every fund movement and calculates transparent performance metrics.

**Responsibilities**:

- Maintains participant ledgers: entry prices, exit prices, realized gains/losses.
- Calculates protocol fees (1% on gains), operator fees (10–20% performance), and staking discounts.
- Generates daily P&L reports visible in Van Gogh terminals.
- Recommends rebalancing based on portfolio drift and risk thresholds.
- Audits Execution agent spending against approved budgets.

- Computes pro-rata refunds for Panic Button (verified by Aristotle).

**Integration**: Off-chain Python database + Pacioli API (monthly settlement on-chain).

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## 5. Van Gogh (Terminal UI & Dashboard)

**Role**: Provides operator-agnostic interfaces for monitoring, governance, and Panic Button access.

**Responsibilities**:

- Displays real-time vault health (collateral, P&L, liquidation distance).
- Embeds Panic Button widget for pro-rata refund initiation.
- Shows Pacioli P&L dashboard updated hourly.
- Enables governance voting (Snapshot or on-chain via Flare staking contract).
- Mints IP-locked terminal NFTs for multi-signature operators (authentication).
- Provides attestation of operator performance for reputation scoring.

**Integration**: Next.js/React frontend + IPFS pinning for terminal NFT metadata.

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# Tokenomics & Token Distribution

## Total Supply: 1 Billion PJ

| Allocation | % | Amount | Vesting / Use |
|---|---|---|---|
| **LP/TGE** | 40 | 400M | Immediate (SushiSwap liquidity + DEX launch) |
| **Treasury** | 55 | 550M | Protocol development, grants, incentives |
| **Staking Rewards** | 5 | 50M | Annual emissions (2% APY declining) |
| **TOTAL** | 100 | 1,000M | Fixed supply (no mint post-TGE) |

## Treasury Breakdown (550M PJ = 55%)

| Category | % of Treasury | PJ Amount | Use |
|---|---|---|---|

| | | | |
|---|---|---|---|
| **Operator Incentives** | 40 | 220M | Performance rewards, multi-sig bonuses, early adopter tier pools |
| **Development** | 25 | 137.5M | Smart contract audits ($100K+ budget), Van Gogh UI/UX, FTSO/State Connector integration |
| **Community Grants** | 20 | 110M | Education, ecosystem projects, bug bounties ($50K audit pool) |
| **Flare Ecosystem Fund** | 15 | 82.5M | Partnerships, FAsset bridge liquidity, cross-chain research (Base/Solana bridges later) |
| **Contingency Reserve** | 5 | 27.5M | Market-making, emergency liquidity, governance transitions |

*Note: Flare allocation increased from 10% to 15% reflecting superior ecosystem support and FTSO oracle capabilities.*

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# Fee Structure

## Protocol Fees (On-Chain, 2.5% of Vault Gains)

- **Performance**: 1.5% of realized gains (e.g., if participant earns $100, PJ takes $1.50).
- **Exit Fee**: 0.5% on redemption (applies when Panic Button triggered).
- **Staking Discount**: Holders staking 1+ year receive 50% fee reduction (1.25% effective).

**Distribution**:

- 55% → Treasury (development, incentives).
- 35% → Genesis LP providers (20% lifetime, locked in smart contract; 15% to ongoing LP incentives).
- 10% → Governance (staking rewards distribution).

## Owner/Operator (O/O) Fees (Separate, Participant-Approved)

- **Performance Fees**: 10–20% of strategy realized gains (pro-rata split among multi-sig operators).
- **Leaderboard Pool**: 5% of protocol gains distributed to top 10 performing vaults monthly.
- **Staking Bonus**: Operators staking 100M+ PJ receive 2.5% fee reduction (e.g., 17.5% instead of 20%).

**Governance**: Participants approve O/O fee tiers before vault deployment via Van Gogh terminal vote.

## Dynamic Sales Tax (On Token Transfers – Based on Market Cap)

| Holder Status | Sales Tax | Example Triggers |
|---|---|---|
| 0–$1M MC | 5% tax | Early launch phase (burn 2.5%, treasury 2.5%) |
| $1M–$5M MC | 3% tax | Early growth (burn 1.5%, treasury 1.5%) |
| $5M–$10M MC | 2% tax | Accelerating adoption (burn 1%, treasury 1%) |
| >$10M MC | 1% tax | Mature phase (burn 0.5%, treasury 0.5%) |

**Duration Exemptions**: Genesis LP holders and staked PJ holders (1+ year lock) exempt from all sales taxes.

**Rationale**: Graduated tax encourages early commitment and long-term holding while reducing friction as liquidity matures.

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# PJ Holder Staking Incentives

| Lock Duration | Annual Reward | Vote Multiplier | Fee Discount | Eligibility |
|---|---|---|---|---|
| **3 Months** | 7.5M PJ / year | 1x | None | Staking rewards distributed proportionally |
| **6 Months** | 12.5M PJ / year | 2x | 1% discount | On protocol fees (2.5% → 2.4% effective) |

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|---|---|---|---|---|
| **12 Months** | 30M PJ / year | 5x | 2.5% discount | On protocol fees (2.5% → 1.25% effective) |

**Total Annual Staking Rewards**: 50M PJ (5% of supply)
**Source**: Treasury allocation (automatic annual emission) + protocol gains redistribution (Pacioli-calculated)

**Genesis LP Investor Rewards**:

| Investor Type | Lifetime Benefit | Annual Estimate | Notes |
|---|---|---|---|
| **OG LP (40% TGE)** | 20% of protocol fees | ~1.4M PJ (at 2% protocol gain) | Locked in Optimus; transferred to heirs; no lock-up |
| **Staked LP (1yr)** | 20% fee share + 5x governance | ~1.4M PJ + voting power | Combined benefit; can exit after lock |
| **Active Operator** | 10–20% performance fees | Variable (strategy-dependent) | Approved by participants; transparent Van Gogh reporting |

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# Governance

## Hybrid Model: Multisig → Staking-Weighted DAO

**Phase 1 (Launch – Q2 2026)**: 3-of-5 Multisig Authority

- **Owner** (1/5)
- **Core Dev 1** (1/5)
- **Core Dev 2** (1/5)
- **Treasury Manager** (1/5)
- **Community Representative** (1/5)

**Authority**: Treasury allocation, fee adjustments, emergency pauses, strategy approvals.

**Phase 2 (Q3 2026+)**: Staking-Weighted DAO (Snapshot + on-chain)

| Stake Tier | Vote Multiplier | Proposal Power | Quorum Requirement |
|---|---|---|---|
| 10–50M PJ | 1x | None | — |
| 50–100M PJ | 2x | 0.5% | 25 votes (5% staked PJ) |

| | | | |
|---|---|---|---|
| 100M+ PJ | 5x | Full | 25 votes (quorum blocks veto) |

**Mechanisms**:

- Snapshot voting (gas-free, 48h).
- On-chain execution via Flare Governor contract (48h timelock).
- Quadratic voting option for fairness (upcoming).
- Vote delegation (up to 5 proxies per holder).
- FTSO sentiment integration (optional: 20% weight to oracle validators' stance).

**Proposable Governance Items**:

- Fee structure changes.
- Treasury allocation.
- New vault strategy approvals.
- Emergency pauses / Panic Button triggers.
- Cross-chain expansion (Base, Solana).

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# Panic Button & Anti-Rug Provisions

## Panic Button Mechanism

**Trigger**: Any participant can initiate via Van Gogh terminal (multi-sig threshold = 25% of active terminal holders).

**Process**:

1. **Initiation**: Participant clicks "Initiate Panic Refund" in Van Gogh terminal.
2. **Verification**: Aristotle queries FTSO prices; Pacioli calculates pro-rata refunds based on actual vault performance.
3. **Multi-Sig Check**: If 25%+ terminals vote "Yes" (24h window), Optimus triggers execution.
4. **Distribution**: Proportional refunds executed immediately without operator approval; amount = participant's pro-rata share computed by Pacioli and verified by Aristotle.

**Example**:

- Vault has 1B PJ in capital.
- Participant has 100M PJ stake.
- Panic triggered; net vault value = $50K after fees/losses.
- Participant receives $5K (10% of current vault value, not fixed 5%).

## Safeguards

**Anti-Operator Abuse** (Prevent Operator Veto):

- Panic Button is smart-contract enforced; operator cannot cancel or delay.
- Aristotle confirmation required (oracle prices must be within ±2% of real-time).
- Pacioli audit of O/O fees before distribution (no hidden charges).

**Anti-Participant Abuse** (Prevent Spam):

- 24h cool-down between Panic attempts per participant.
- Threshold = 25% of terminals (prevents single whale from blocking recovery).
- Failed Panic attempt = 20% penalty (of initiator's stake; 50% burned, 30% to treasury for audits/security, 20% distributed to non-panic participants as deterrent).

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# Technical Architecture

## Smart Contracts

### 1. PJToken (ERC-20)

- 1B total supply (fixed, no mint post-TGE).
- Dynamic sales tax (5%/3%/2%/1% based on market cap milestones).
- Genesis LP exemption from tax.
- Staking integration (deposit PJ → locked rewards).

### 2. VaultFactory (Core)

- Deploys isolated ERC-4626 vaults per strategy.
- Registers vaults with Optimus guardian contract.
- Enables multi-sig operator provisioning.

### 3. VaultCore (ERC-4626)

- Entry/exit functions (atomic, no slippage).
- Synchronized exit coordination (block-time locked).
- Pacioli fee calculation integration.
- Panic Button hook (emergency refund logic).

### 4. Optimus (Vault Guardian)

- Multi-signature executor for synchronized exits.
- Panic Button circuit breaker (calls VaultCore.emergencyRefund).

- Collateral monitoring + liquidation prevention.
- Genesis LP lock (20% of protocol fees distributed perpetually).
- Event logging for audit trail.

## 5. AristotleOracle (FTSO Integration)

- Flare FTSO price feeds (XRP, FLR, SGB, custom tokens).
- State Connector for cross-chain proofs.
- 66%+ collator consensus for liquidation approval.
- Panic Button verification (price confirmation before refunds).

## 6. PacoliLedger (Off-Chain + Monthly Settlement)

- Maintains participant P&L ledgers.
- Calculates protocol/O/O fees on-chain via callback.
- Computes pro-rata Panic Button refunds.
- Generates audit trail for governance review.

## 7. GovernanceToken (Staking + Voting)

- 3/6/12-month lock options (1x/2x/5x vote multiplier, fee discounts).
- Snapshot voting integration.
- Delegation contract.
- Annual staking reward emissions (50M PJ).

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# Integration Points

| Component | Technology | Integration |
|---|---|---|
| **Oracle** | Flare FTSO + State Connector | AristotleOracle contract + Pacioli price feeds |
| **UI/Dashboards** | Next.js + React | Van Gogh terminal NFT metadata (IPFS) |
| **Strategy Execution** | JavaScript/Python | Enosys/Fors custom agents (off-chain, Pacioli logging) |
| **DeFi Protocols** | SparkDEX, Kinetic, Sceptre, Enosys, FXRP/FAssets | Execution Agent routing (custom protocol support) |
| **Governance** | Snapshot + Flare Governor | Multisig → DAO transition (Q3 2026) |
| **Liquidity** | SushiSwap / FlareDex | Genesis LP (20% lifetime share locked in Optimus) |

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# Roadmap

## Q1 2026 (January–March)

- ✅ PJToken ERC-20 contract deployment (Flare mainnet + testnets).
- ✅ Whitepaper v2.4 finalization + Flare grant application.
- 🔄 VaultCore + Optimus smart contracts (audit pending).
- 🔄 Aristotle oracle integration (FTSO integration testing).
- 🔄 Van Gogh terminal beta UI launch (testnet only).

## Q2 2026 (April–June)

- 🔄 3 independent security audits ($100K+ budget).
- 🔄 Coston2 testnet vault launch (community testing).
- 🔄 Panic Button demo + operator onboarding.
- 🔄 SushiSwap LP initialization (400M PJ + $500K FLR equivalent).
- 🔄 Token Genesis Event (TGE) on Flare mainnet.

## Q3 2026 (July–September)

- 🔄 Staking contract + DAO transition (Snapshot voting live).
- 🔄 Multi-strategy vaults (FTSO staking, FAsset farming, LP yield).
- 🔄 Pacioli P&L dashboard (live participant reporting).
- 🔄 Operator reputation scoring system.
- 🔄 Cross-chain research (Solana/Base bridge design).

## Q4 2026 (October–December)

- 🔄 Leaderboard pool distribution ($50M+ monthly bounty).
- 🔄 Community governance proposals (fees, treasury).
- 🔄 Advanced analytics (on-chain P&L verification).
- 🔄 Potential cross-chain deployment (Solana / Base canary).

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# Risk Disclosure & Mitigation

## Smart Contract Risk

**Risk**: Code vulnerabilities, re-entrancy attacks, gas optimization failures.

**Mitigation**:

- 3 independent audits (Certora, TrailBits, Quantstamp pending).
- OpenZeppelin ERC-4626 standard (battle-tested).
- Optimus multi-sig controls pause function; 48h timelock on upgrades.

# Oracle Risk

**Risk**: FTSO price manipulation or collator consensus failure.

**Mitigation**:

- Aristotle requires 66%+ collator agreement (impossible to manipulate single validator).
- State Connector provides cryptographic proof of price (dispute window).
- Fallback: Pacioli emergency pricing based on AMM reserves if FTSO fails.

# Operator Risk

**Risk**: Operator misbehavior, exit scams, fee siphoning.

**Mitigation**:

- Panic Button enforces pro-rata refunds without operator approval.
- Pacioli audits all fees before distribution.
- Van Gogh NFT terminal provides multi-sig transparency.
- Operator reputation scoring (on-chain performance history).

# Liquidity Risk

**Risk**: LP insufficient at exit; forced slippage.

**Mitigation**:

- Genesis LP lock (20% of gains/fees returned to pool perpetually).
- Staking rewards encourage long-term holding.
- Treasury reserves up to 5% of vault AUM for emergency liquidity.

# Regulatory Risk

**Risk**: Securities classification in certain jurisdictions; operational restrictions.

**Mitigation**:

- Governance token (PJ) structured as utility (voting, fee discount, not dividend).
- Operator/participant agreements clarify risk disclosures.

- Treasury allocation includes compliance legal budget.
- Flare ecosystem focus (aligned with regulatory forward-thinking).

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# Team & Advisors

## Founder

**Crypto Trader / DeFi Architect** (Pseudonymous)

- Active in cryptocurrency markets since 2019.
- Extensive experience with Flare ecosystem and Sui ecosystem; deployed multiple DeFi strategies across blockchains.
- Avid trader and overall crypto professional.
- Identified copy-trading trust gap after observing retail losses to operator exit scams.
- Built Pool Junky leveraging Flare FTSO oracle for transparent yield verification.

## Core AI Agent Team

- **Aristotle (Math/Verification)**: FTSO oracle validation + statistical verification.
- **Pacioli (Accounting/AI)**: P&L tracking + strategy recommendations.
- **Optimus (Security/Execution)**: Smart contract guardian + Panic Button coordinator.
- **Execution Agent (O/O-Named Strategy Router)**: Multi-protocol routing + yield optimization.
- **Van Gogh (Terminal UI & Dashboard)**: Operator-agnostic interfaces + governance.

## Advisors

- **Flare FTSO Contributors**: Oracle economics + state connector integration.
- **Solana MEV Experts**: Cross-chain expansion strategy (FAsset bridge design).
- **DeFi Security Researchers**: Risk modeling + audit coordination.

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# Compliance & Legal Disclaimer

**Regulatory Status**: Pool Junky is an experimental DeFi protocol under development. No financial advice is provided.

**Risks**:

- Smart contract vulnerability.
- Oracle failure or censorship.

- Regulatory classification changes.
- Total loss of capital possible.

**Users Agree To**:

- Non-custodial participation (user controls private keys).
- Performance fees disclosed on-chain.
- Governance changes may alter terms post-launch.
- No recourse against devs for strategy loss (only smart contract bugs).

**Audits Pending**: Certora, TrailBits, Quantstamp (Q2 2026).

**Not Registered**: SEC, CFTC, or any financial regulator. Not a security offering.

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# Conclusion

Pool Junky solves the fundamental trust gap in copy-trading yield through five specialized AI agents, Flare's enshrined FTSO oracle, and participant-controlled Panic Button emergency exits. The hybrid governance model (multisig → DAO) ensures operator accountability while maintaining protocol agility.

**Early adopters receive genesis LP benefits (20% lifetime fee share), staking discounts (2.5% → 1.25% fees), and reputation scoring opportunities as operators.**

**Join us on Flare. Fair yield. No exit scams.**

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# Appendix: Key Metrics Summary

| Metric | Value |
|---|---|
| **Network** | Flare (Chain ID 14) |
| **Total Supply** | 1 Billion PJ |
| **Initial Circulation** | 60% (LP 40% + TGE 20%) |
| **Protocol Fees** | 2.5% of gains (1.5% performance + 0.5% exit) |
| **O/O Fees** | 10–20% performance (participant-approved) |
| **Max Wallet** | Unrestricted (no 3% cap) |
| **Max TX** | 1% supply (10M PJ per transaction) |
| **Sales Tax** | 5%/$1M → 3%/$5M → 2%/$10M → 1% (market cap graduated) |

| | |
|---|---|
| **Staking Lock Options** | 3/6/12 months (1x/2x/5x vote weight, 0%/1%/2.5% fee discount) |
| **Annual Staking Rewards** | 50M PJ (5% of supply) from Treasury |
| **Genesis LP Lifetime** | 20% of protocol fees (locked in Optimus, heritable) |
| **Governance** | Multisig (launch) → Snapshot DAO (Q3 2026) |
| **Panic Threshold** | 25% of active terminals |
| **Failed Panic Penalty** | 20% of initiator stake (50% burn, 30% treasury audit fund, 20% to non-panic participants) |
| **Oracle** | Flare FTSO + State Connector |
| **Audit Budget** | $100K+ (3 firms) |
| **Treasury** | 550M PJ (55% of supply) |
| **Flare Ecosystem Fund** | 15% (82.5M PJ) for partnerships & FAsset liquidity |

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**Pool Junky Whitepaper v2.4**
**January 2026**
**Flare-Native DeFi for Fair Yield**

*Print-Optimized for A4/Letter (22 pages, professional formatting)*

*Last Updated: January 27, 2026 | Ready for GitHub, Flare Grant Submission, and Investor Distribution*