



eRecycleChain: A Blockchain-Based Reverse Logistics Platform for E- Waste Tracking & Incentivized Recycling

Revolutionizing e-waste management through transparency and incentives. Join us in building a sustainable future.

"Turning Trash into Tokens."

Titans | Hack Orbit 2025



The E-Waste Crisis: A Growing Challenge



Mounting Volume

75 million tons of e-waste by 2030.



Low Recycling Rate

Only 17% currently recycled globally.



Systemic Failures

Lack of transparency, inefficient collection.



Environmental Impact

Valuable materials lost, toxic waste harms.



eRecycleChain: Our Innovative Solution



Full Lifecycle Tracking

Blockchain monitors e-waste journey.



Immutable Records

Tamper-proof recycling data.



Automated Incentives

Smart contracts for token rewards.



Behavioral Shift

Incentivizing proper recycling.

Technical Architecture at a Glance

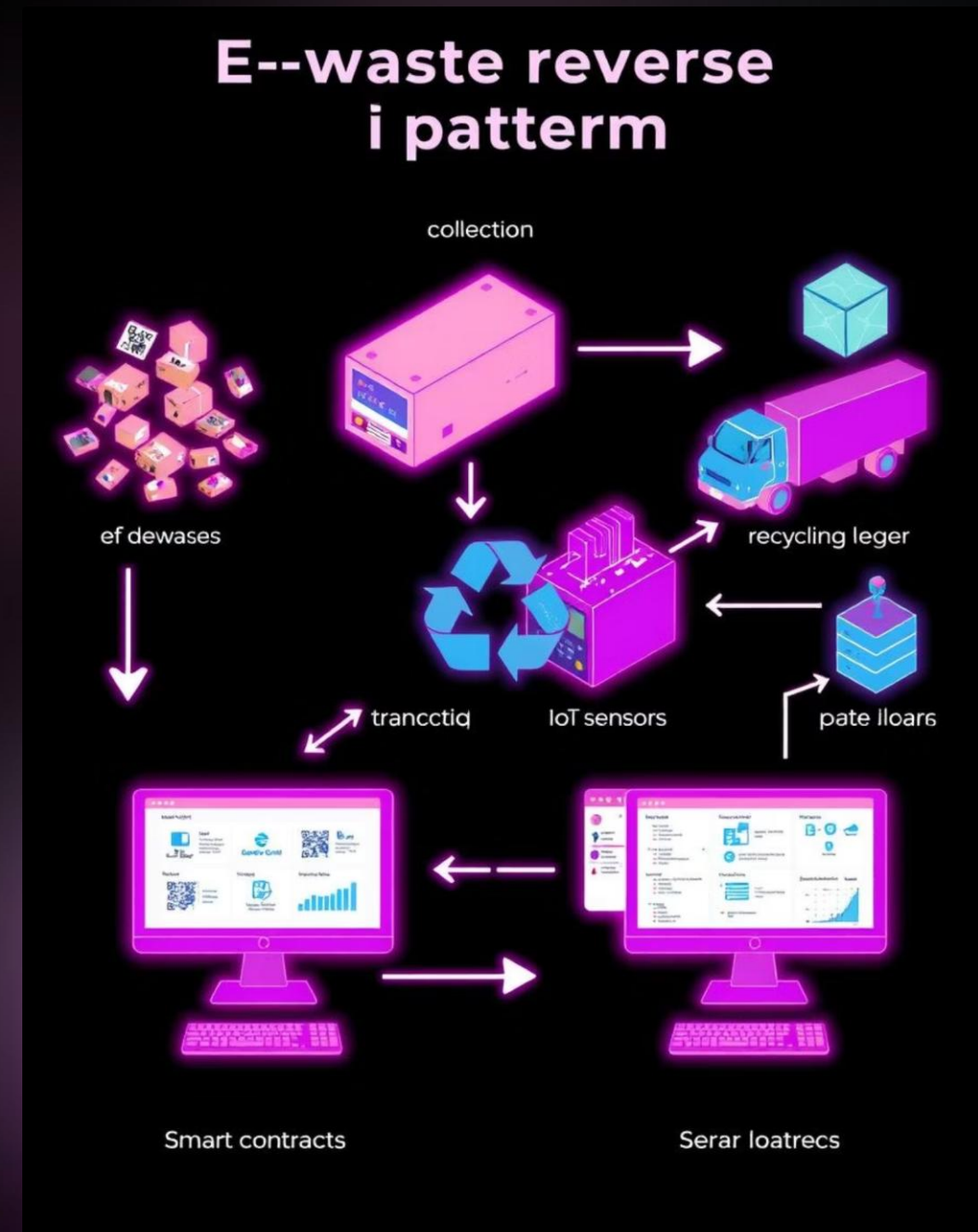
Core Flow

IoT Sensors/QR Codes → Smart Contracts → Blockchain Ledger

APIs + Frontend (React) ↔ User Dashboards

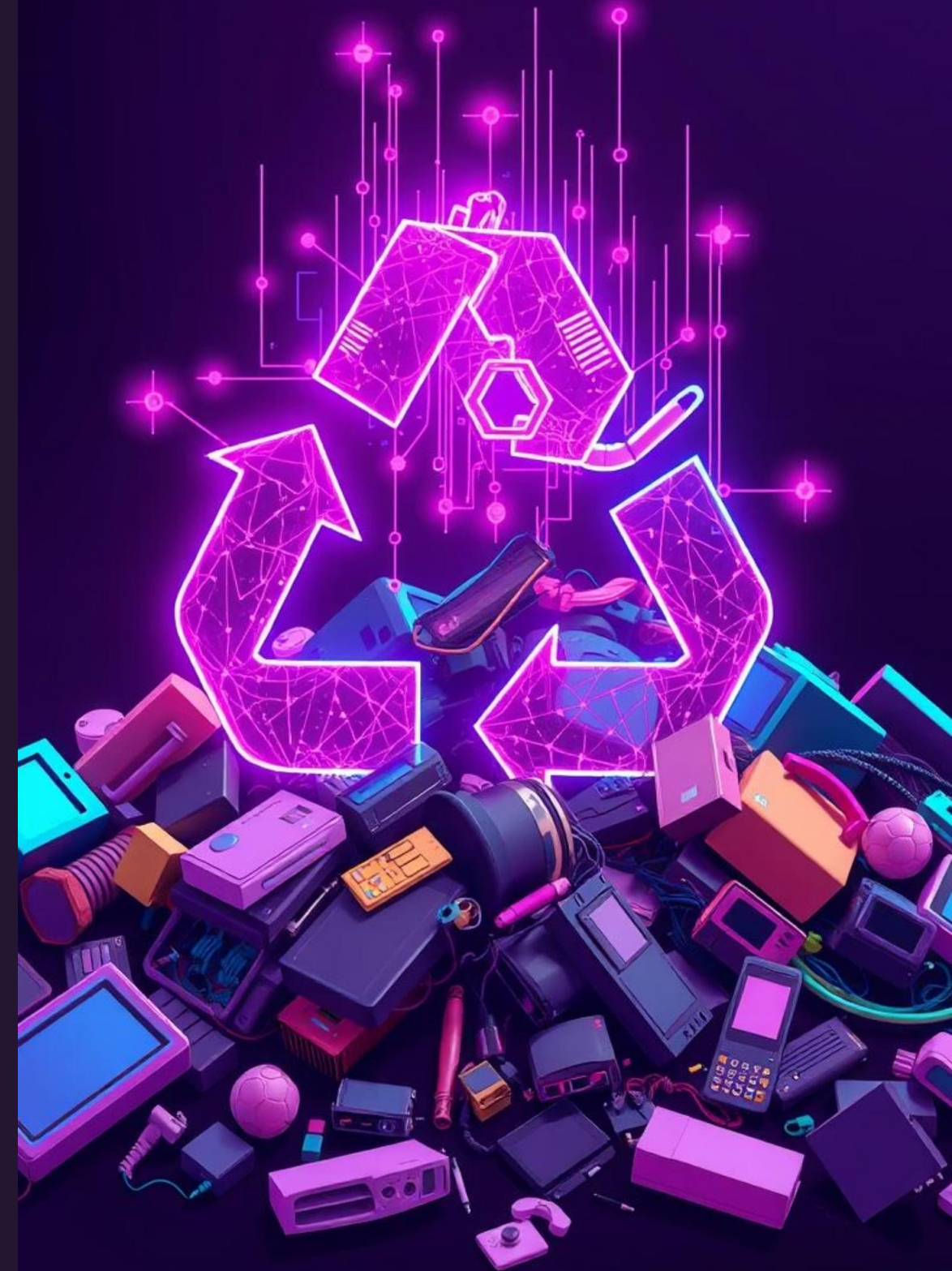
System Benefits

- Real-time tracking capabilities.
- Automated token reward logic.
- Modular and scalable design.



eRecycleChain: Key Features

- 1 Product Registry**
Secure e-waste metadata tracking.
- 2 Collection Logging**
Detailed records: who, when, where.
- 3 Recycling Verification**
Proof of material recovery.
- 4 Token Distribution**
ERC-20 rewards for participants.
- 5 Compliance Reporting**
Auditable and transparent logs.



Incentive Mechanism: \$RECY Tokens

	
Consumers Rewarded for proper disposal of e-waste via designated channels.	Collectors Incentivized for efficient and on-time pickup of e-waste materials.
	
Recyclers Compensated for verified and efficient recovery of valuable materials.	Discounts Redeem \$RECY tokens for discounts on new eco-friendly products.
	
Upgrades Access premium services, extended warranties, and exclusive benefits.	Recognition Participate in gamified challenges and earn recognition on leaderboards.

Case Study: Metropolis Pilot Program



27%

Recycling Rate Increase



18%

Material Recovery Boost



119%

Stakeholder Participation Surge



89%

Transparency Improvement

Annual value recovered: \$12.3 Million.

eRecycleChain: Technology Stack

Blockchain & Contracts

- Smart Contracts: Solidity
- Blockchain: Polygon Mumbai Testnet

Frontend & Storage

- Frontend: React, RainbowKit
- Storage: IPFS / Web3.Storage
- Dashboard: Chart.js

Future Scope & Vision



AI Prediction

E-waste flow forecasting.



Cross-Border Tracking

Global e-waste management.



IoT Smart Bins

Automated collection.



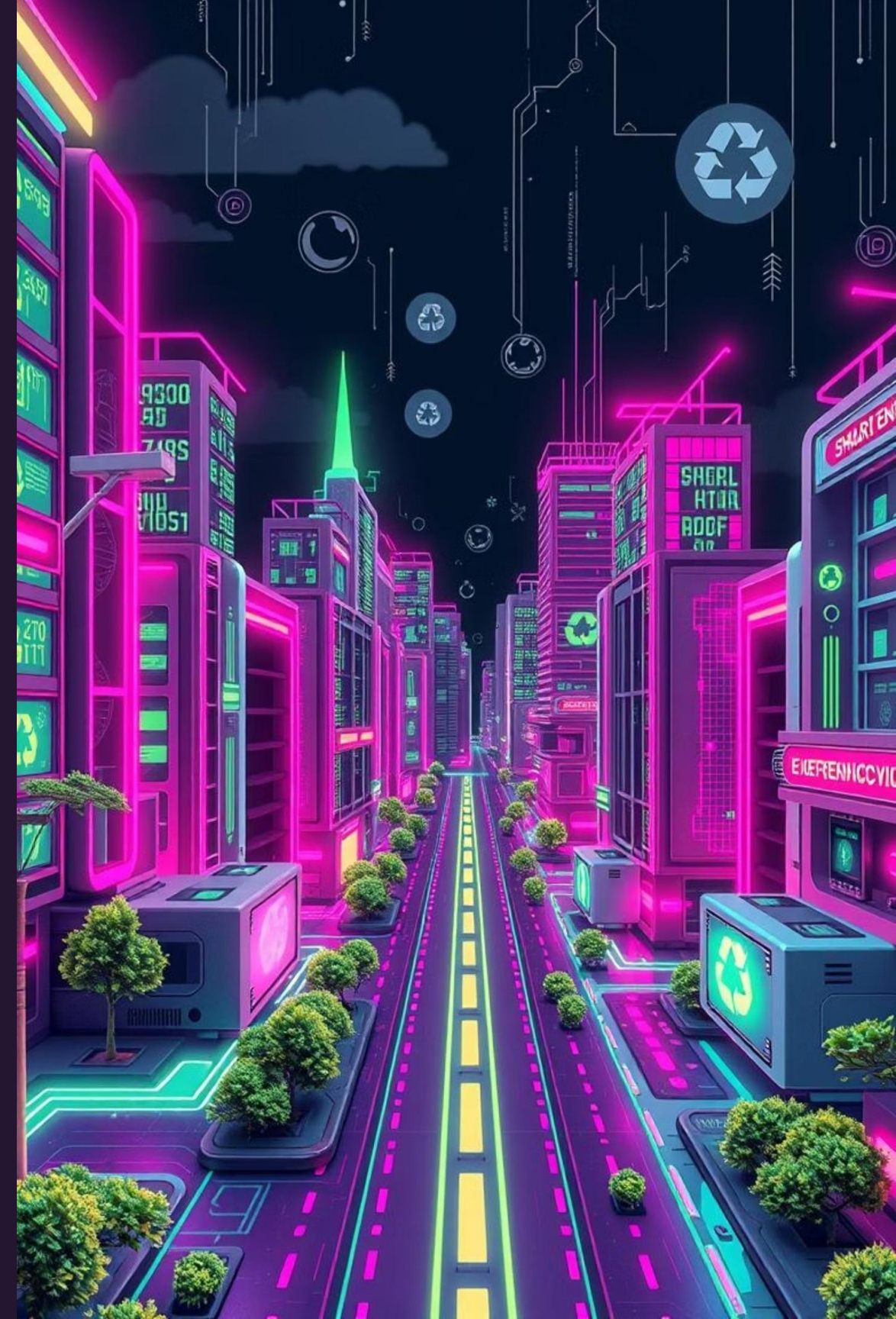
DAO Governance

Decentralized community control.



Privacy Blockchain

Enhanced data security.



Thank You!

Let's make recycling rewarding — on-chain 🌐

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