Cardano Foundation

Open-Source Blockchain Solutions

Cardano's Infrastructure-First Approach

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Backend Development Lead
Cardano Foundation

Open Source & Blockchain Technology

It’s about trust and transparency

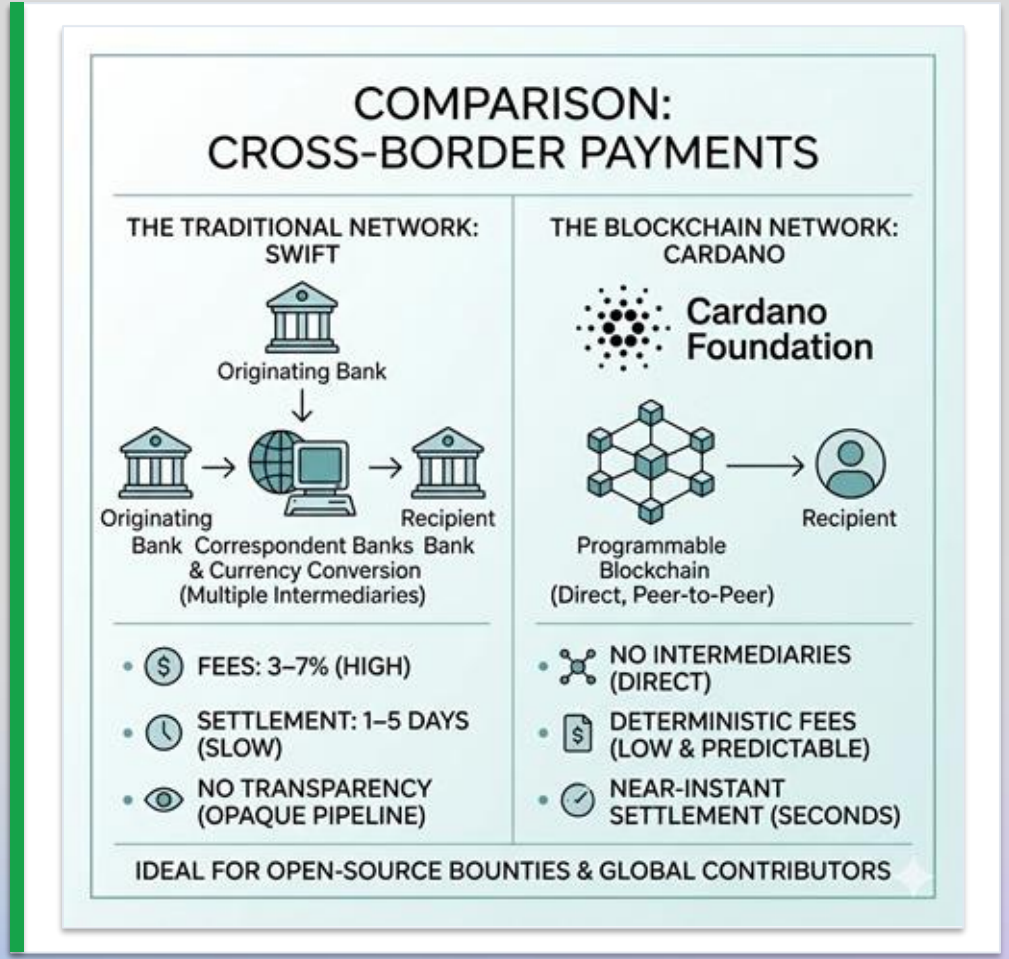
Use Cases for Blockchain Technology

- Decentralized Finance (DeFi)
- Real-World Asset (RWA) Tokenization
- Cross-Border Payments Without Intermediaries
- Digital Product Passports
- Verifiable Credentials
- Tamper-Proof Data Anchoring
- AI Agent Receipts
- x402 Protocol
- On-Chain Real-Time Financials (Reimagining the Audit)

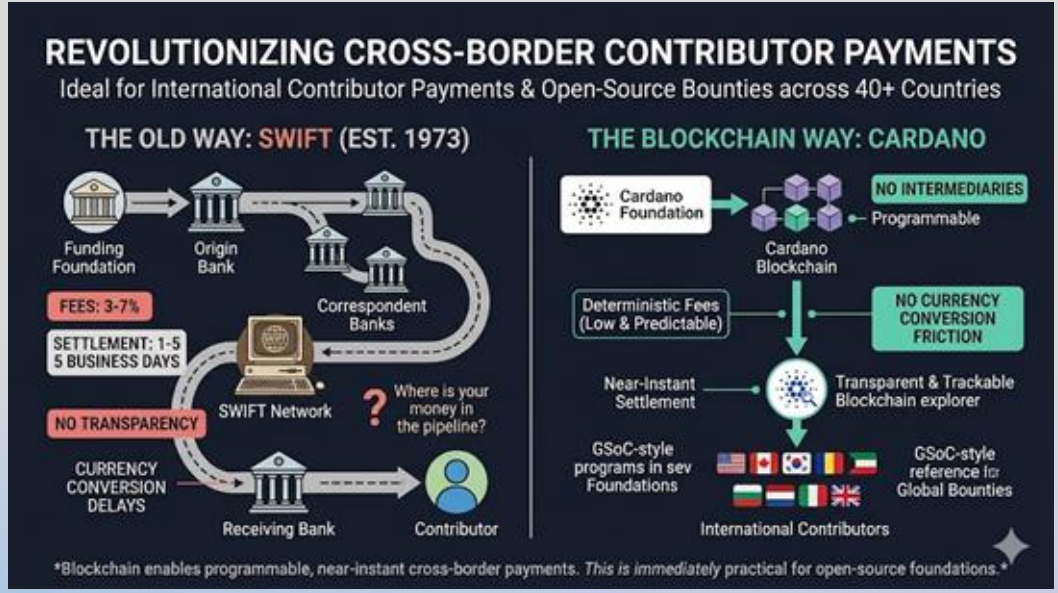
Cross-Border Payments Without Intermediaries

Instant settlement without SWIFT. Deterministic fees, no currency conversion delays.

Ideal for international contributor payments & open-source bounties.



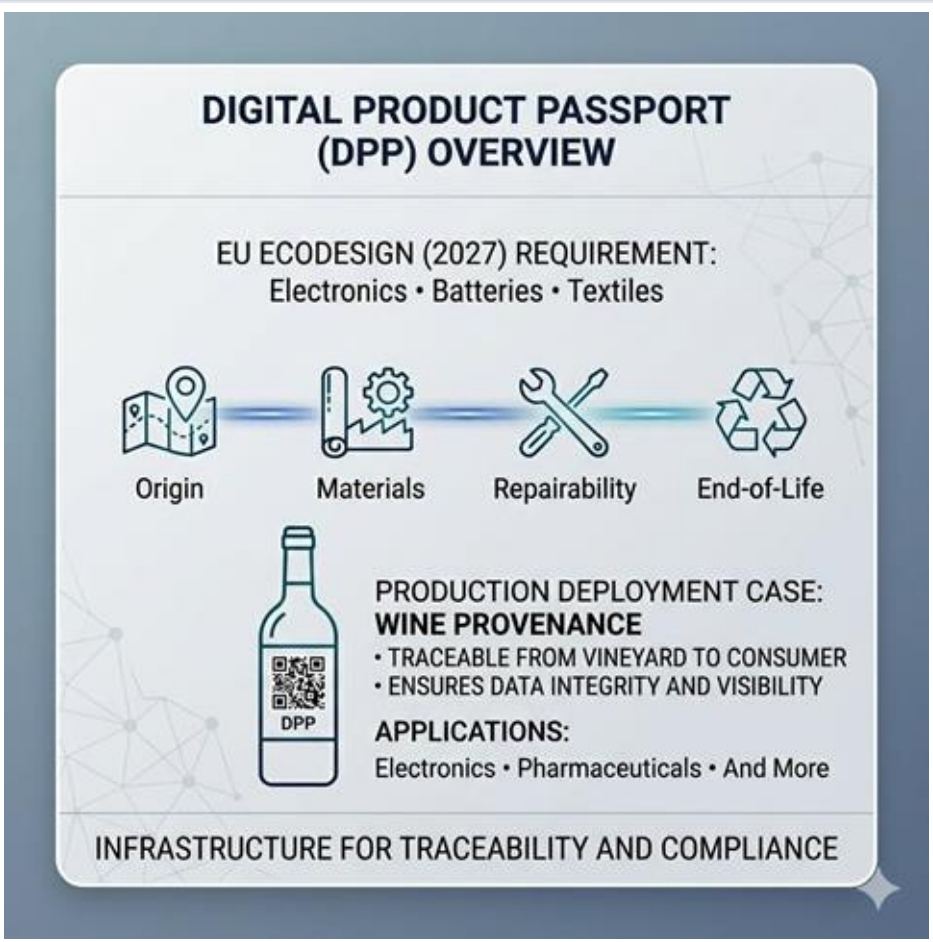
Cross-Border Payments Without Intermediaries



Digital Product Passports — Provenance and Compliance

EU Ecodesign Regulation (2027) requires DPPs for electronics & batteries.

Cardano's OriginateNavio platform is already in production — Georgian wine provenance, traceable to the block.



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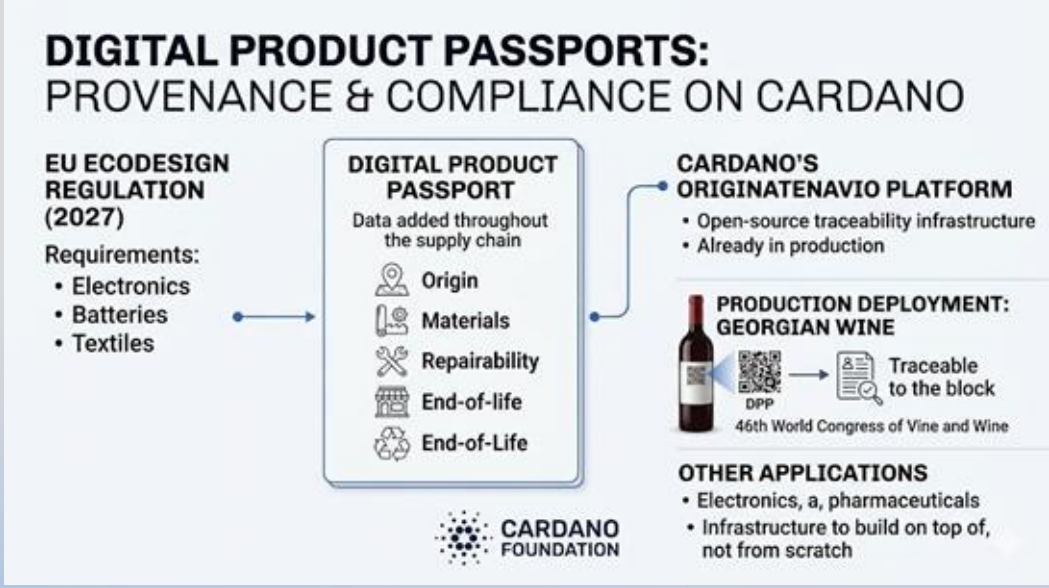


Verifiable Credentials — Certifications That Can't Be Faked

Cryptographically signed certificates — cannot be forged or secretly revoked.

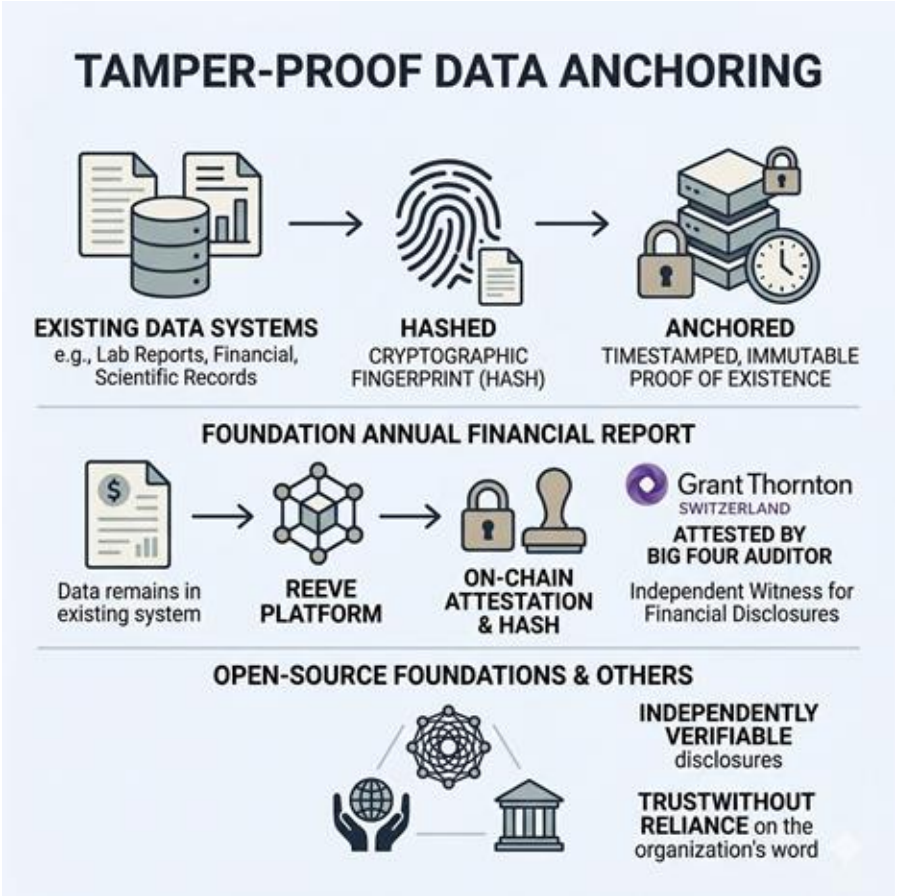
Deployed by UNDP's Tadamon program across 57 countries via the Veridian platform.

Verifiable Credentials — Certifications That Can't Be Faked

Tamper-Proof Data Anchoring — Lab Reports, Audits, Scientific Records

Hash any document → anchor on-chain → immutable timestamp.

Lab reports, audit logs, financial statements. Nobody can quietly edit history.



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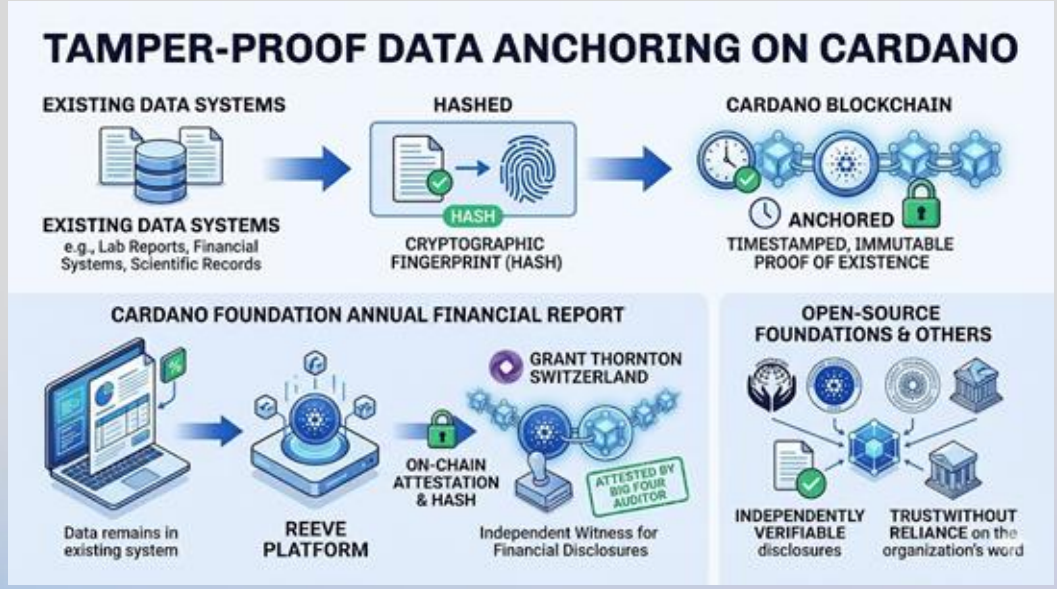

AI Agent Receipts — Signed, Verifiable Inter-Agent Transactions

Every agent action produces a signed, on-chain receipt.

Full forensic audit trail of multi-agent workflows — who called what, when, and what was returned.

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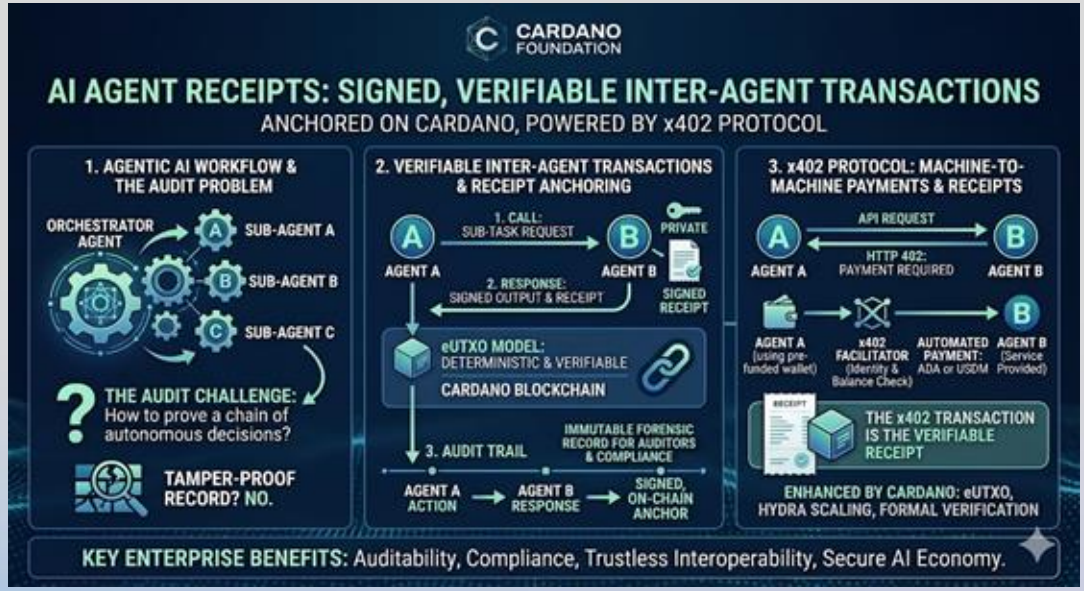
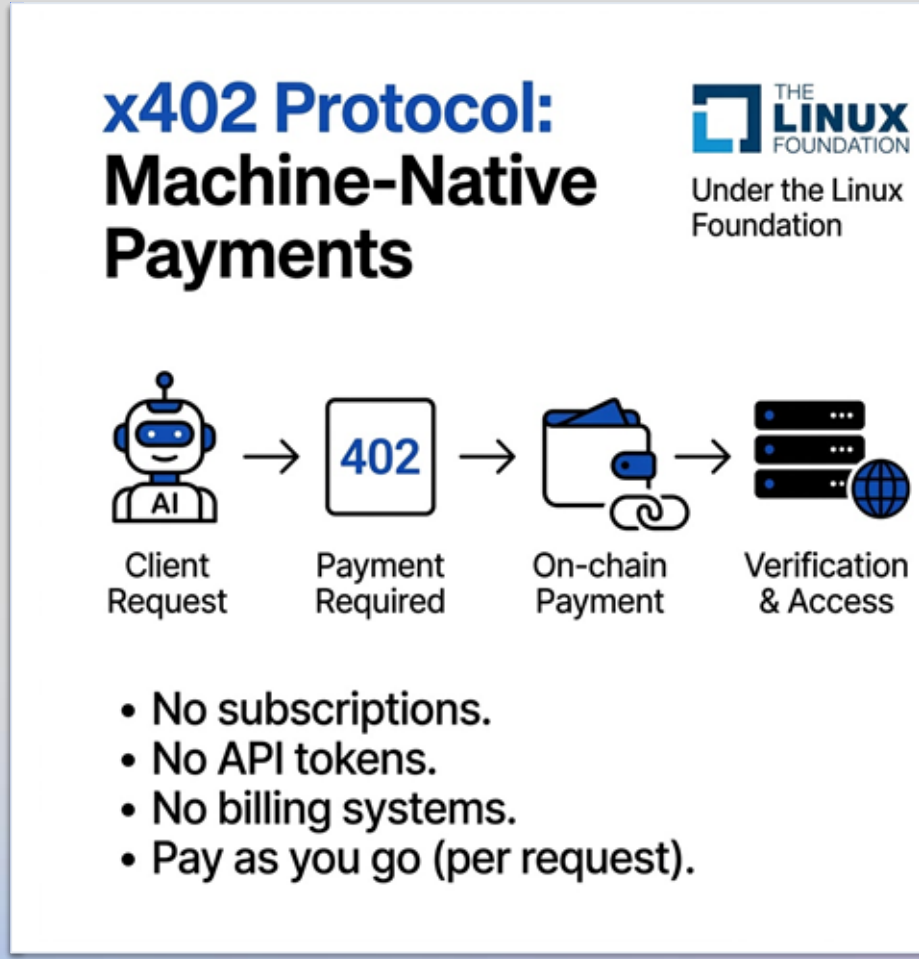


x402 Protocol — Machine-Native Payments, Now Under the Linux Foundation

HTTP 402 = internet-native micropayments. One middleware line, no billing system, no accounts, no KYC.

Now under the Linux Foundation: github.com/cardano-foundation/x402



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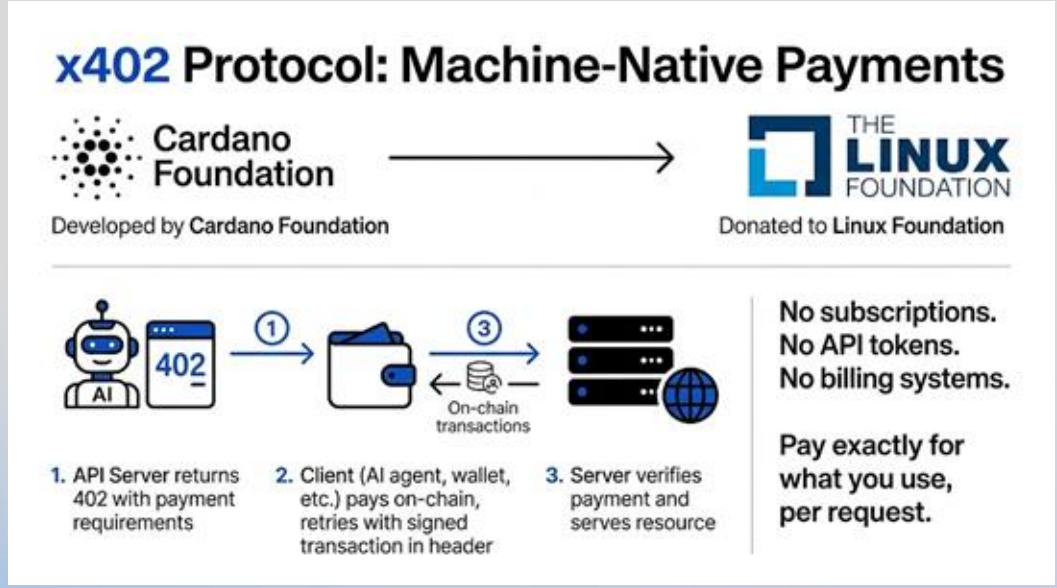
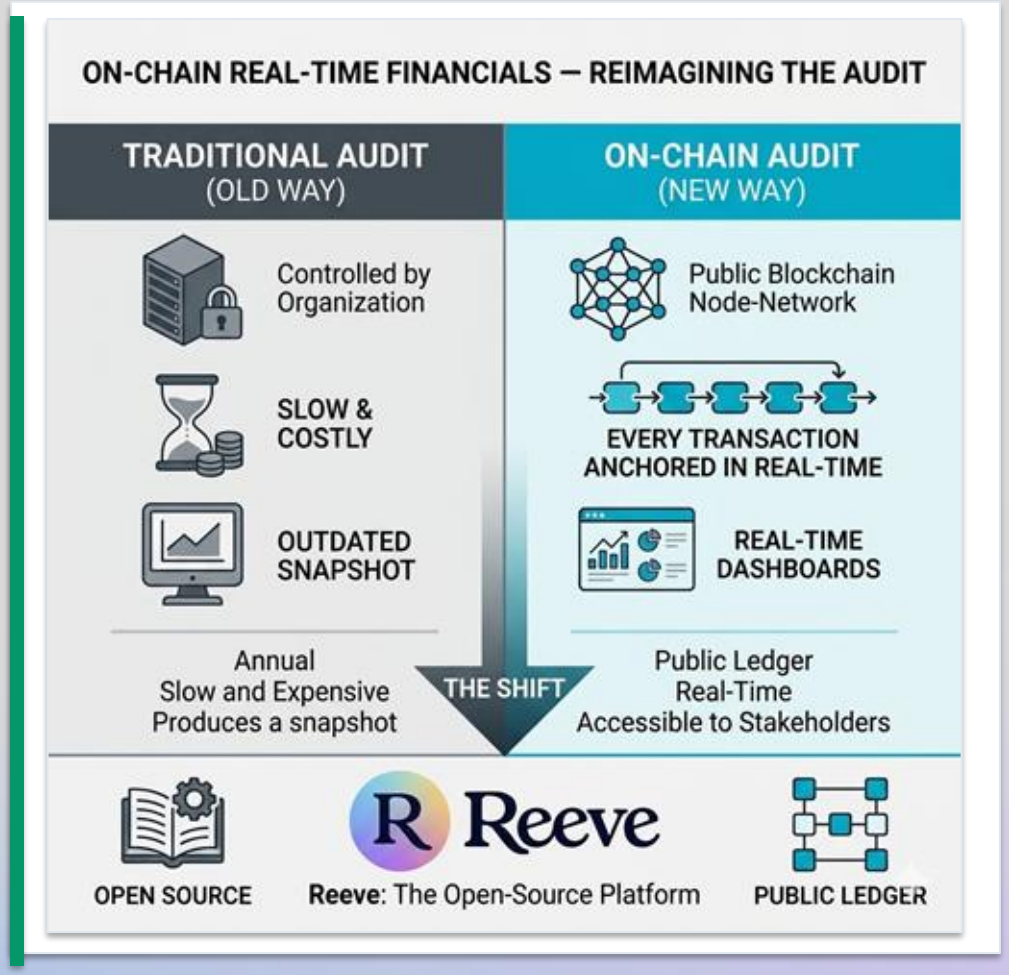


On-Chain Real-Time Financials — Reimagining the Audit

Transactions anchored as they happen. Auditors verify against the chain — not the company's internal database.

Cardano Foundation publishes its own annual report on-chain, attested by Grant Thornton Switzerland.



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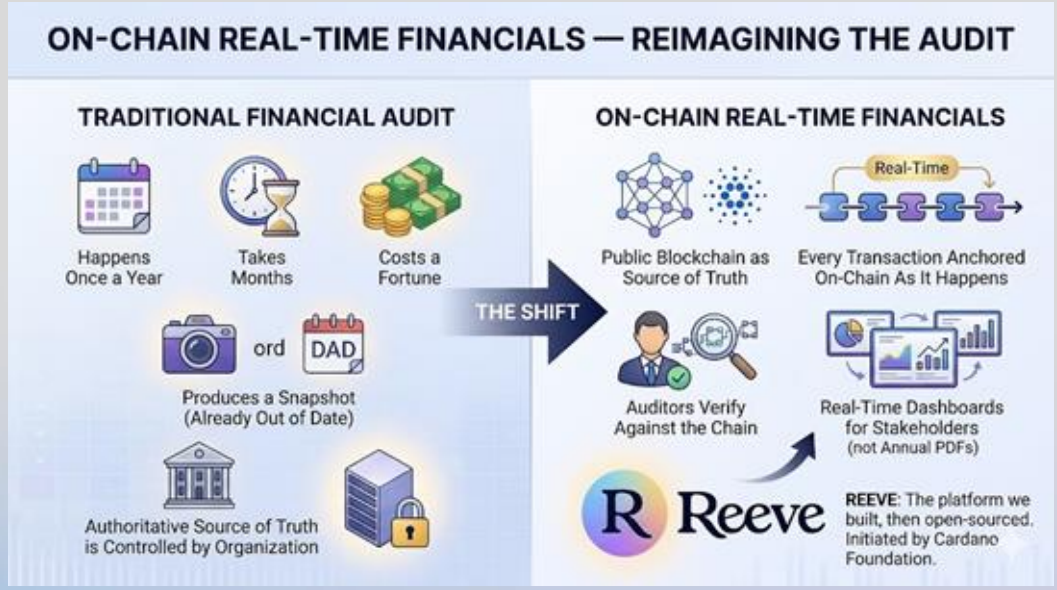


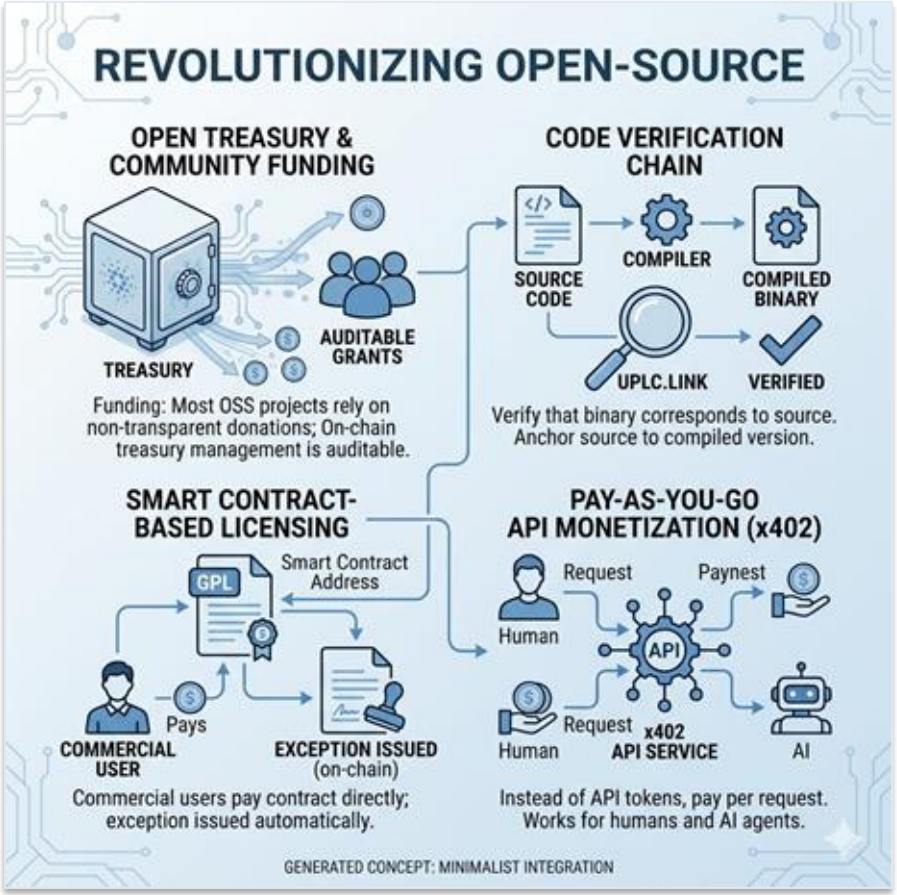
Blockchain Technology as a Tool for Open Source Organizations

- Open-Source Funding, Licensing & Pay-As-You-Go APIs via x402
- Geospatial Data & Compliance Verification as Paid API Calls
- Scientific Data Monetization — Reproducibility and Attribution On-Chain
- ML Inference as a Paid Service — Agent-to-Agent and Human-to-Model
- Industrial & Sustainability Data — Immutable ESG and Carbon Records
- Agent-to-Agent Payments — The Economic Layer for Autonomous AI Systems

Open-Source Funding, Licensing & Pay-As-You-Go APIs via x402

GPL + smart contract address = automatic license payments.

x402 for pay-as-you-go APIs. On-chain treasury = publicly auditable open-source funding.



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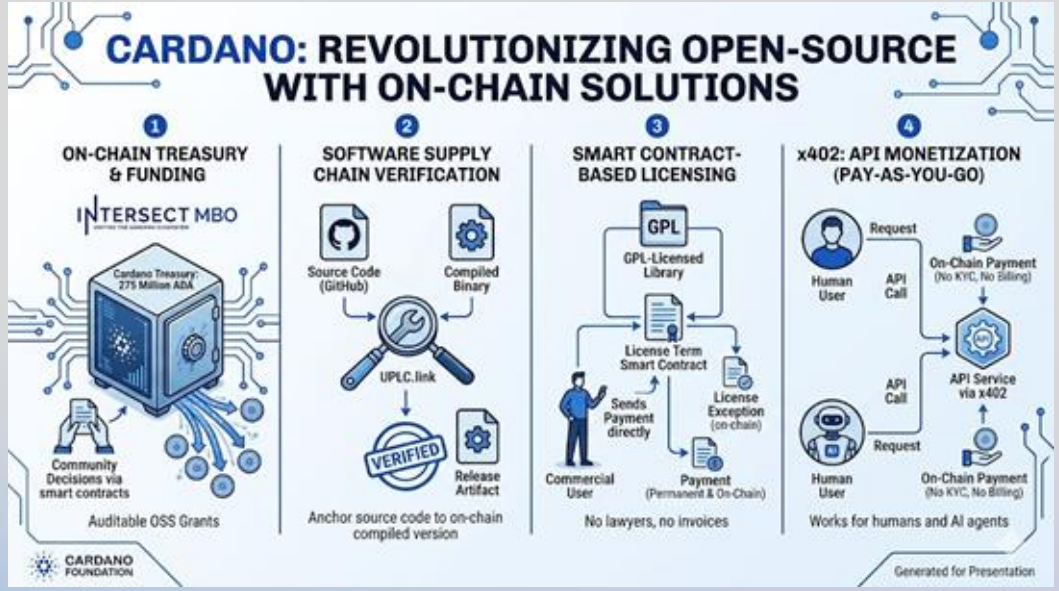

Geospatial Data & Compliance Verification as Paid API Calls

Satellite imagery per tile. LEI compliance lookups per call.

No subscription — pay on-chain per request via x402. Works for human and AI agents equally.

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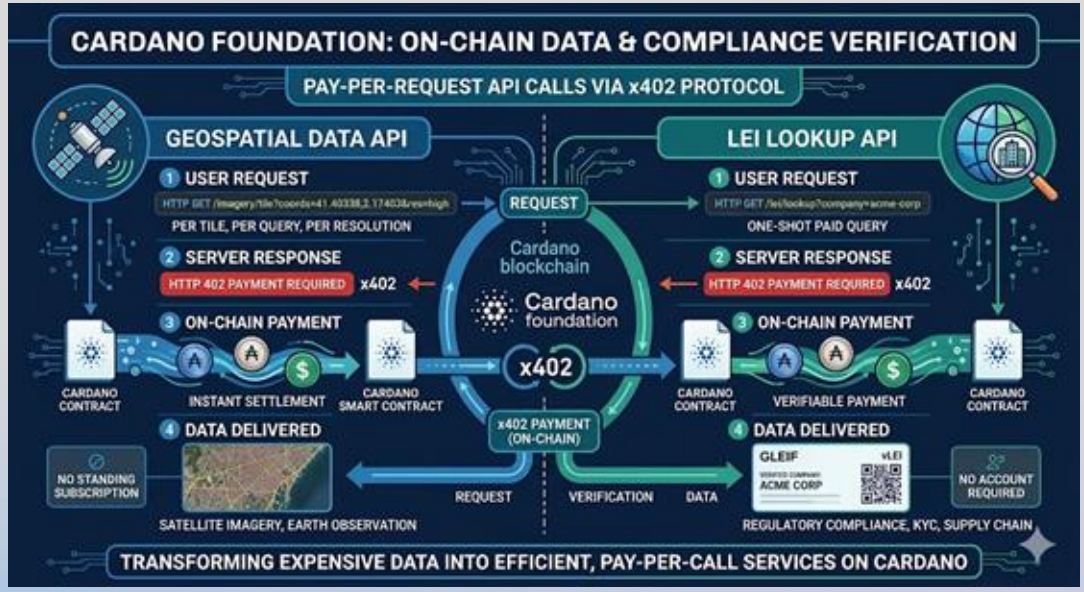
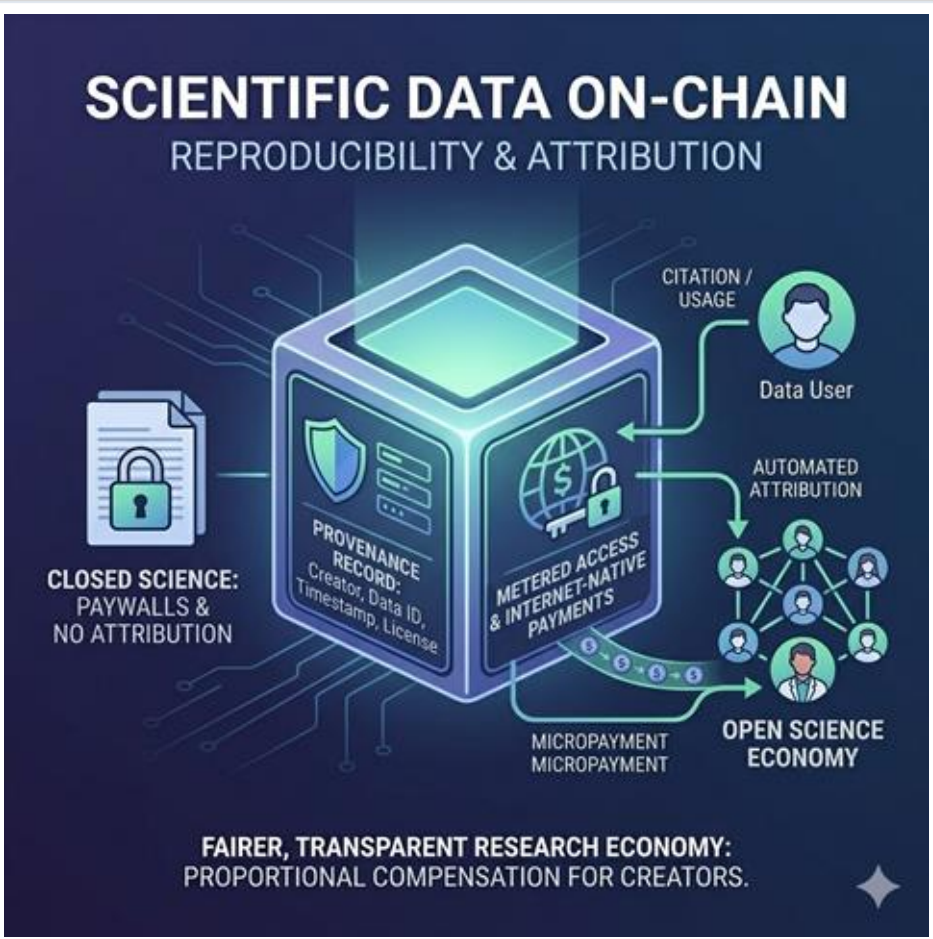


Scientific Data Monetization — Reproducibility and Attribution On-Chain

Dataset provenance on-chain. Attribution micropayments per citation.

Open science with fair compensation — no paywalls, reproducibility by design.



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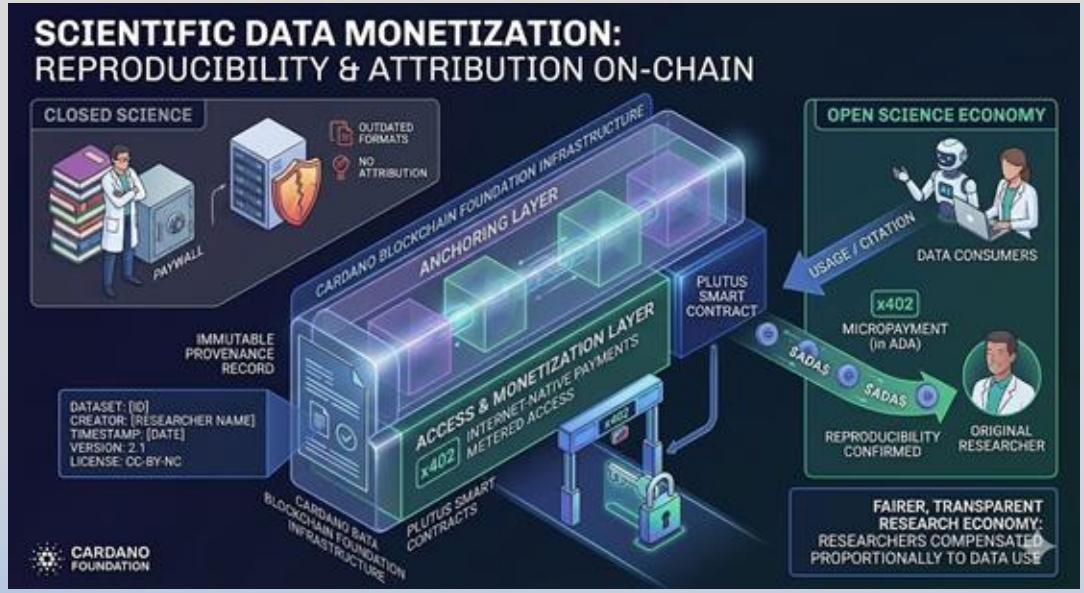
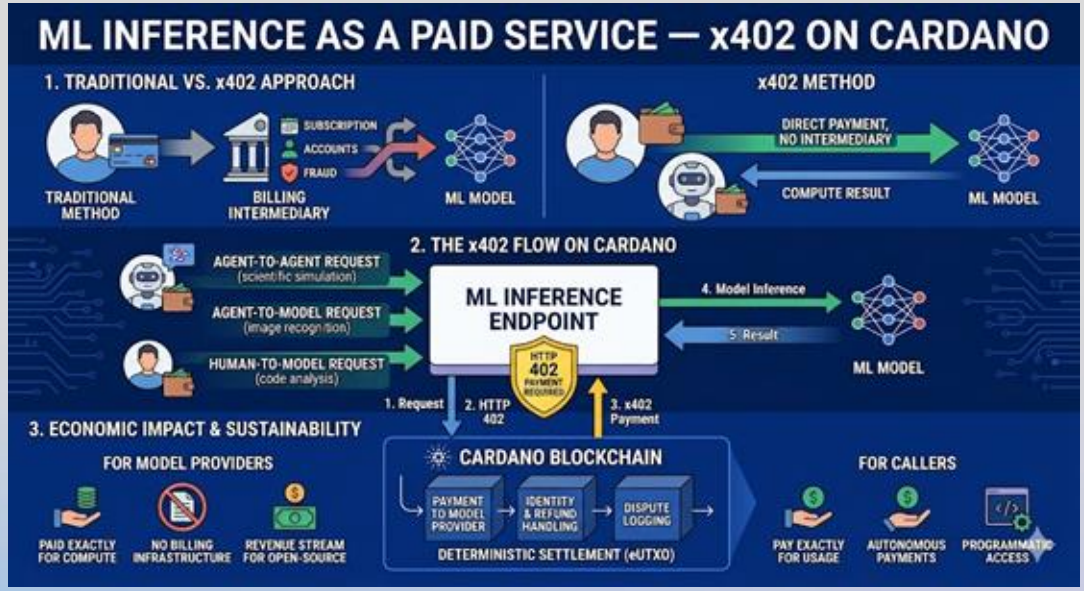


ML Inference as a Paid Service — Agent-to-Agent and Human-to-Model

Expose any model as a metered API endpoint. Callers pay per inference call, on-chain.

Self-sustaining open-source AI infrastructure — no billing system needed.

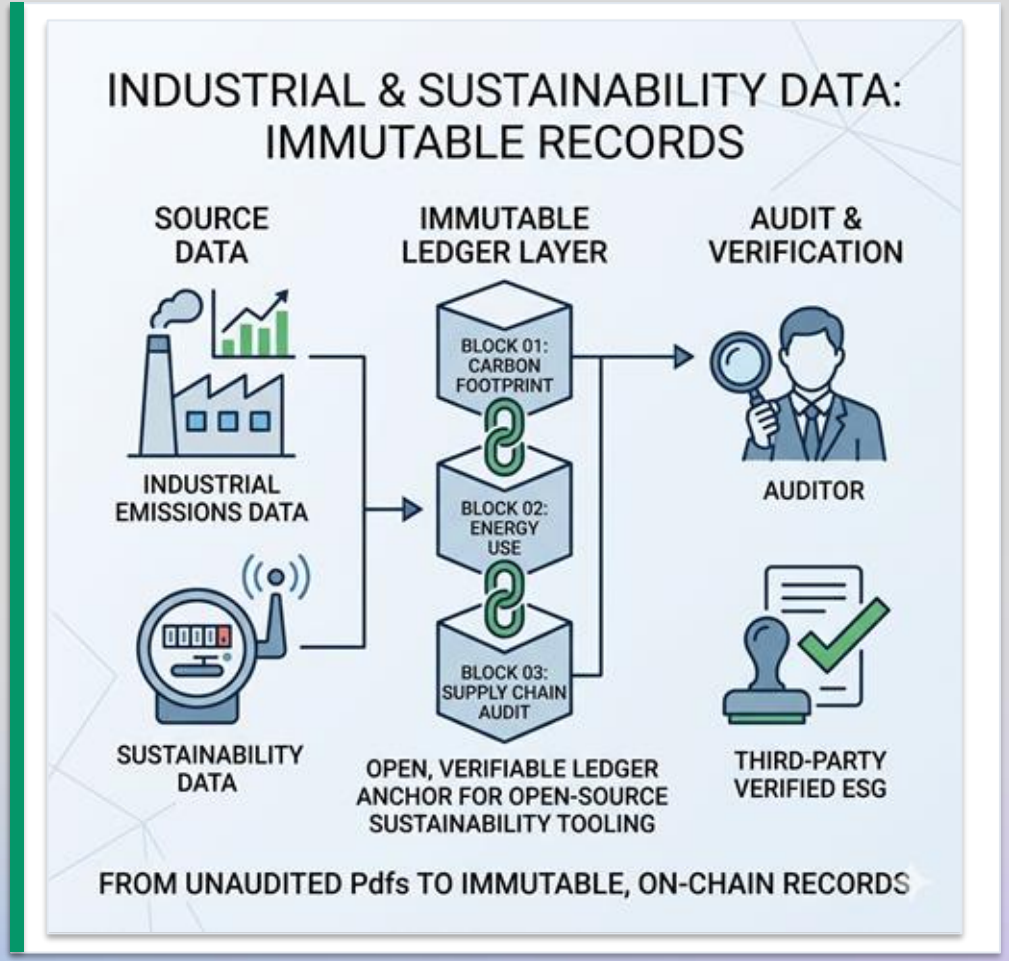
ML Inference as a Paid Service — Agent-to-Agent and Human-to-Model



Industrial & Sustainability Data — Immutable ESG and Carbon Records

Sensor readings anchored on-chain. Immutable carbon accounting.

EU CSRD-ready: third-party verifiable, not self-reported PDFs.



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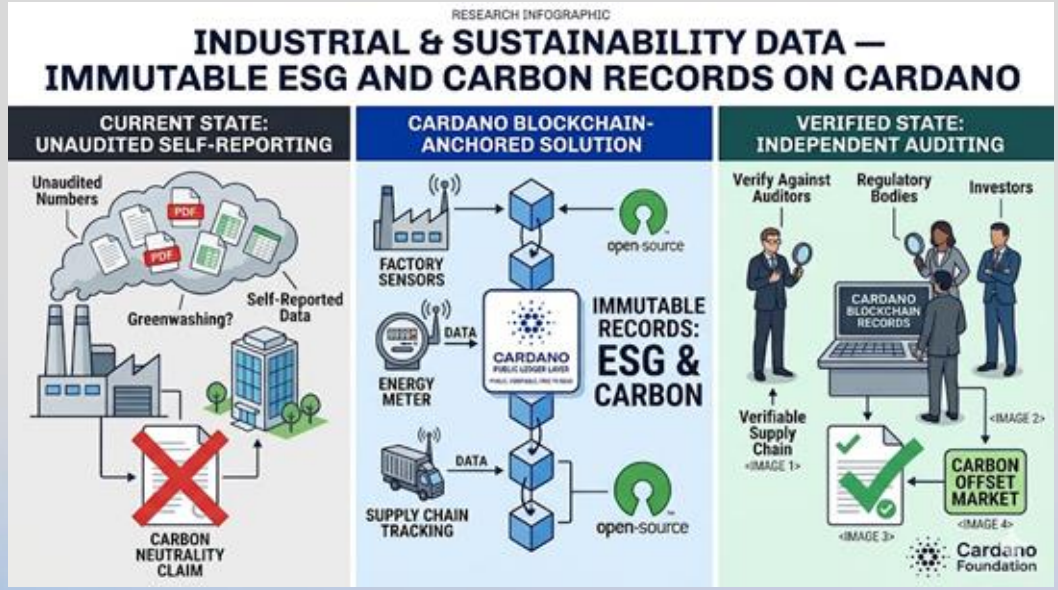


Agent-to-Agent Payments — The Economic Layer for Autonomous AI Systems

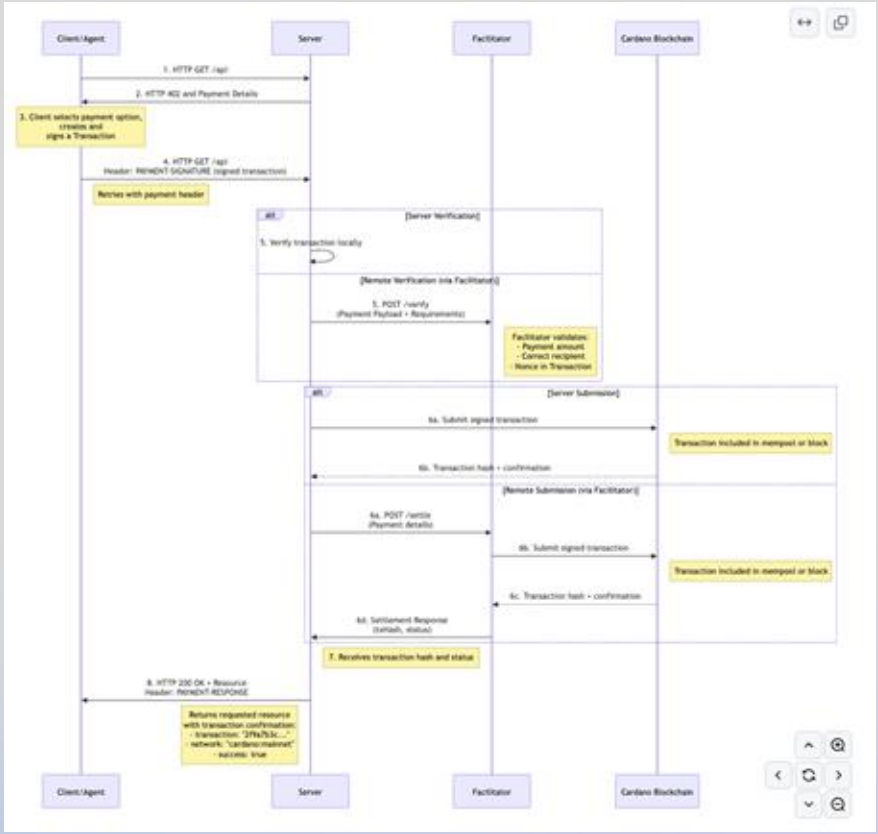
Agents hold wallets, earn and spend ada autonomously.

x402 as the economic protocol layer for multi-agent systems. Built and open-sourced by the Cardano Foundation.

Agent-to-Agent Payments — The Economic Layer for Autonomous AI Systems

https://www.linuxfoundation.org/x402foundation

- Agent ←→ Agent payments
- Earth observation & geospatial
  Compliance & verification one-shots (LEI lookups)
- Scientific & research data
- Specialized ML inference
- Industrial & sustainability data

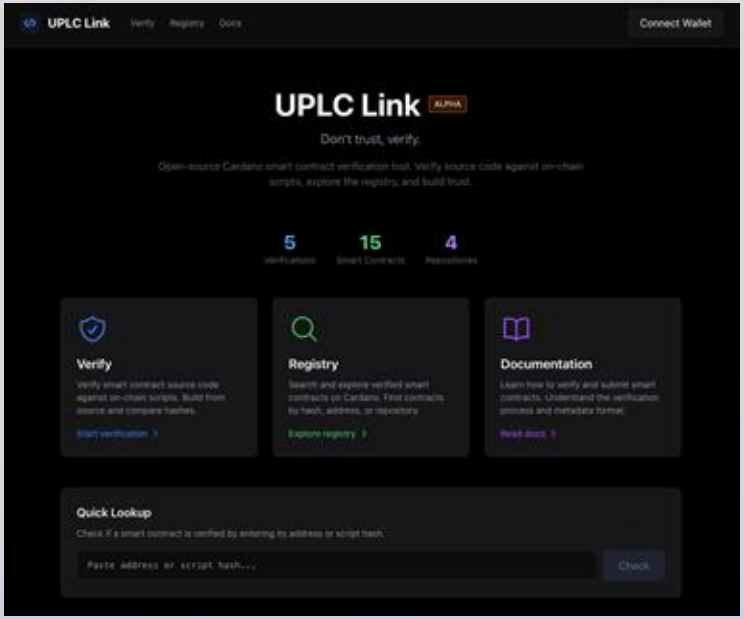


https://github.com/cardano-foundation/x402

Open Source as a Requirement for Blockchain Technology

Intersect MBO

Why should you trust a node, if you can't see its source code?



Uplc.link: Link source code to on-chain logic

How Does a Blockchain Work (simplified version)

- Live Demo: Python code — (maybe not and jump to Reeve as use case)

What is a Blockchain?

Transaction

Building block of activity

Data | Size (kB) | Account | UTXOs

Block

The batching mechanism

Size (kB) | Finality

Consensus

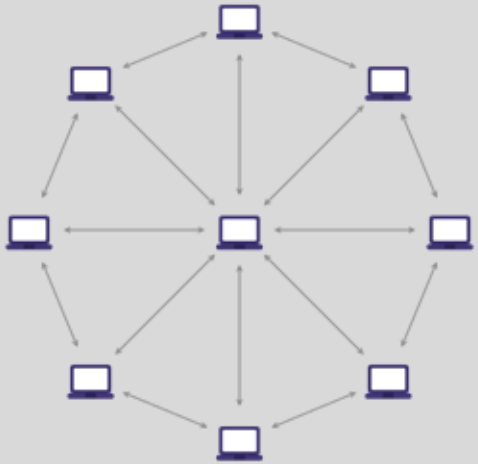
Single Source of Truth

PoA | PoW | PoS | ...

Node

Independent computers in the network

Hardware | Cloud | Local



What is Cardano?

Transaction

Building block of activity

Metadata | 16 kB | EUTXO

Block

The batching mechanism

88 kB | ~20 sec. | 3-5 min | 15 min | 12 hours

Consensus

Single Source of Truth

Delegated Proof of Stake

Node

Independent computers in the network

Raspberry Pi | ~3000 Block Producer

eUTXO

UTXO #1

ADA

Datum

Token

Private Keys
Validator Scripts
→ Redeemer data

Epoch Cycle

1 Epoch = 5 days

(432,000 slots)

1 slot = 1 second

Energy Efficiency
~0.006 TWh/year
Bitcoin: ~150 TWh/y

Academic

Epoch 625 | Block height 13 298 422

CARDANO Entities

Input | Output

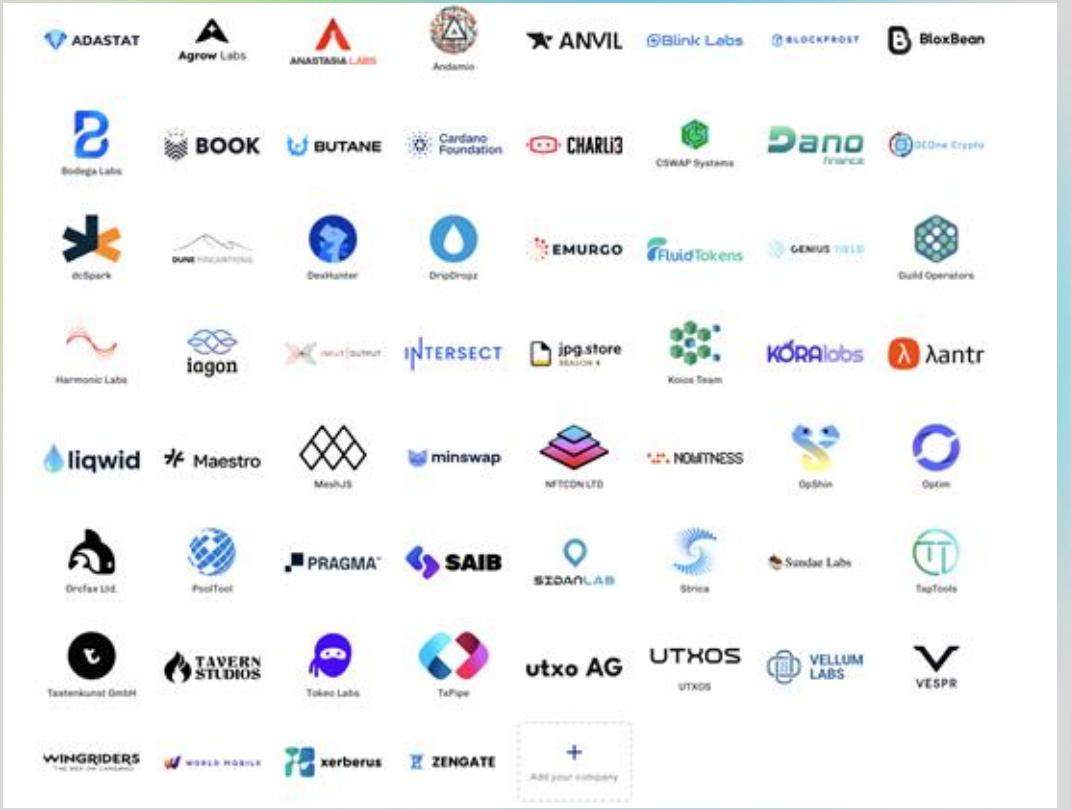
Cardano Foundation

PRAGMA™

Emurgo

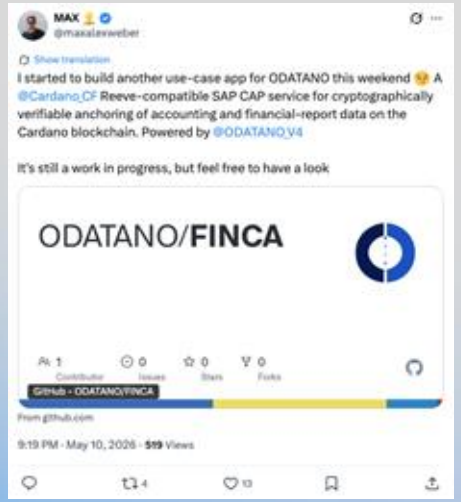
INTERSECT™

CARDANO Ecosystem



Infrastructure is ready: Now let’s use it!

- What is Reeve and Why Does It Exist? — Open-source on-chain financial transparency, tested by Grant Thornton Switzerland.



Q&A

Thank you for joining us today and for your participation!