

Establishing a chain of custody built to resist tampering

A forensic management system secured on the Cardano blockchain

Challenge

A single case ID exposes evidence to every handler along the way

As an evidence box moves toward a courtroom, it typically passes through a police station, a central forensic laboratory, and specialized labs handling blood, bone, hair, or toxicology testing. At every stop, the box **carries a single case ID, written in plain view for anyone to see.**

That visibility creates three separate openings for compromise. Inside the police station, the case number becomes common knowledge among staff as soon as it is assigned. In transit between the station and the laboratory, the box is identifiable and out of anyone's direct custody. Inside the forensic labs, every technician knows exactly which case they're processing.

The labs are deliberately kept apart so their findings stay independent, but **a shared, visible identifier gives every party a common reference point to coordinate around**, undoing that separation by design. For a system built on evidentiary integrity, the vulnerability is never the handling process itself. Instead, it's the information recorded outside the box.



Industry

- India Digital Evidence Management Market

Size

- USD 0.24 Billion (2026)
- USD 0.65 Billion (2032)
- CAGR 18.1% (2026-2032)¹

The challenge

- Case ID visible to every handler
- Identifier unprotected at every stage
- Shared reference across separate labs
- Vulnerability rooted in the identifier alone

The solution

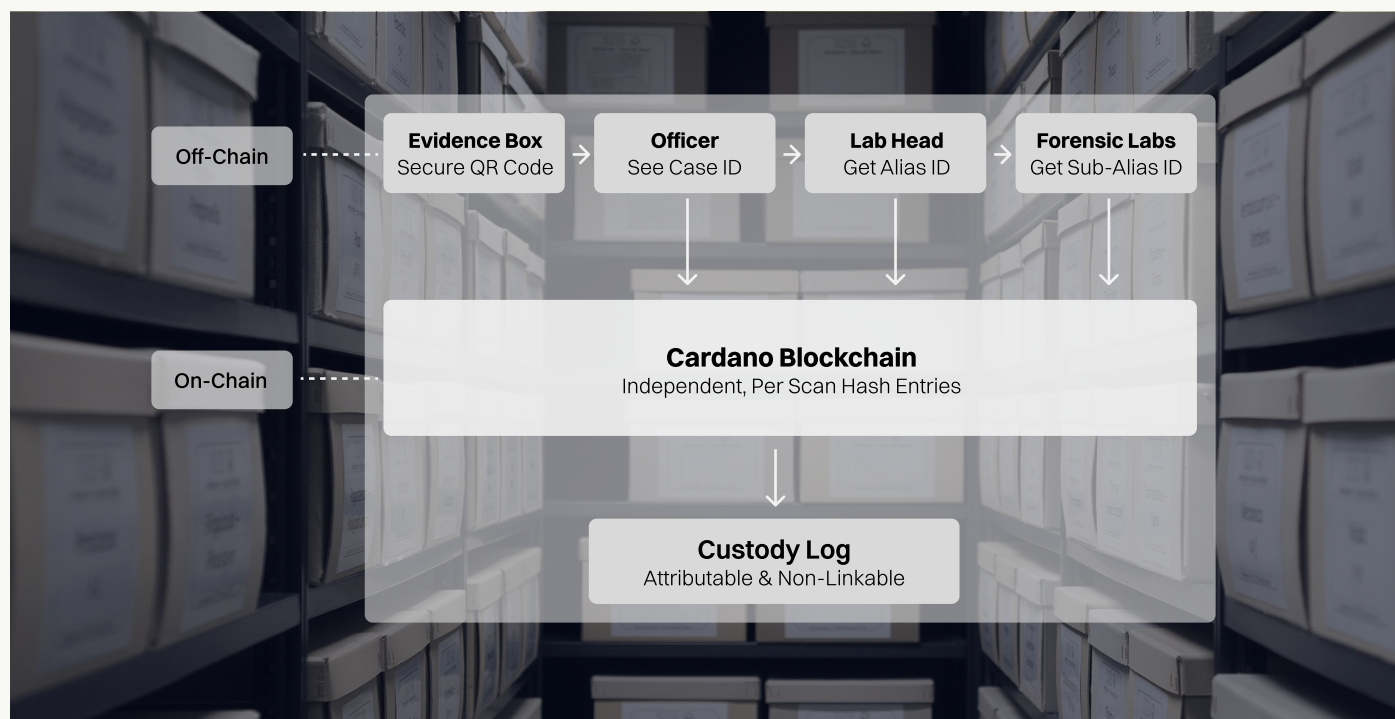
- Evidence captured inside the app itself
- Secure QR code replaces visible case ID
- Separate identifier issued to each handler
- Every scan and result secured on Cardano

"Police evidence handling depends on trust between departments that are deliberately kept separate. Before this system, that trust rested on a case number anyone could read. We built the Forensic Management System so the chain of custody does not depend on discretion. Each handler now works from an identifier meaningful only to their own step, and every scan becomes a permanent record on Cardano."

Rahul Konudula
Founder & CEO, TrivolveTech

Solution

Replacing a shared case ID with identifiers unique to each handler



TrivolveTech built the Forensic Management System (FMS) to remove the shared identifier altogether. Instead, each handler in the chain of custody now **works from a detached, cryptographic identifier that means little to those outside each step of the process.**

Officers record incidents using the FMS app, so traceable record-keeping begins immediately. That data reaches the police station automatically, while physical evidence remains in a sealed box. Instead of a visible case ID, **the box carries a secure QR code readable only by the FMS app.**

Each handler who scans that code receives a different identifier, while the officer sees the actual case ID. The head of the central forensic laboratory receives a separate alias ID with no derivable link back to it. Individual labs also receive their own sub-alias ID, so a technician cannot match their identifier to others. **Every identifier, scan, and result is stored as an immutable record on Cardano.**

Solution Walkthrough



01. →



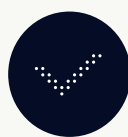
Officers capture and record the incident inside the FMS app, and data is transmitted to the station automatically.

02. →



The sealed evidence box carries a secure QR code instead of a visible case ID, readable only by the FMS app.

03. →



The central laboratory head scans the code to receive an alias ID, and each forensic lab scans it to receive its own distinct sub-alias ID.

04. →



Each scan and result is recorded on Cardano as an immutable hash, creating a verifiable chain of custody from the crime scene to the forensic lab.

Results

Progress toward an evidence chain without tampering

**A live deployment with a government customer**

The FMS operates today with police in Uttar Pradesh, handling active cases.

**Three tampering windows closed to one attributable log**

Removing the shared case ID replaces a common reference point with a record of exactly who scanned each box and when.

**A Web2 front end that supports adoption**

A conventional app running on top of Cardano, with the ledger kept discreet, made adoption easier for a police force.

**Accountability extending to the first login**

Decentralized identifiers issued to police staff mean the chain of custody begins at login, not the first piece of evidence collected.

**Granularity chosen over cost savings**

The police chose one transaction per data point, valuing tamper-proofing even though Cardano keeps transaction costs low.



CARDANO

Advantages

**Proven resilience**

Demonstrated security and reliability support continuous operation.

**Scalable network**

Future-proof infrastructure supports platform growth without sacrificing performance.

**Secure data**

Robust architecture protects sensitive data, minimizing the risk of breaches or fraud.

**Sustainable operations**

Energy-efficient consensus and ethical governance align with sustainability efforts.

Source

¹ India Digital Evidence Management Market Size, Share, Trends and Forecasts 2031

Contact us



Cardano
Foundation

The Cardano Foundation is an independent, Swiss-based not-for-profit advancing Cardano as a public digital infrastructure across a wide range of industries.



cardanofoundation.org