The Cold Standard

A Fixed Reference for a Record That Won't Stop Moving

Sanjeet Kumar · August 2026 · DOI 10.5281/zenodo.22073326 · CC BY 4.0

The problem

As AI systems come to write, store, retrieve, summarise and interpret institutional records, almost every check we can run on a record is performed by tools of the same class as the thing being checked — the hash, the audit log, the backup and the verifier are all digital artifacts read through software. A record whose authenticity rests on institutional assertion alone is a fiat record, and the physical difficulty of coherent forgery that once backstopped assertion has been eroded to almost nothing.

The gap

Humanity already keeps important material in remarkable places: film vaults under the Svalbard permafrost, state registries under diplomatic immunity in Luxembourg, and — since 2024 — operating data centres on and around the Moon. Every one of them is a backup, built to be opened after the catastrophe. Nothing at any altitude is built to be consulted on ordinary days, to measure whether the working record has moved.

The instrument

Cold standard — a fixed, sealed corpus held beyond the executable reach of any system on Earth, opened only through governed human action, and consulted routinely — in normal operation — to answer one narrow question: is what an institution holds now what it sealed then? A historical-state oracle, not a truth oracle. Four load-bearing properties: fixed (sealing epochs that include the interpretation layer), no remotely mutable execution, human-gated, attestation-only.

The precedent

The design has run twice before, for about a century each time. The prototype kilogram calibrated every scale on Earth from a vault outside Paris — consulted twice a century, physically drifting, and authoritative throughout, because a reference does not need to be true; it needs to be fixed. Gold convertibility disciplined money on ordinary days precisely because the check was always available, even though it was rarely used.

Inside the paper

A six-tier isolation ladder ordered by non-adjacency (logical → air gap → geological → extraterritorial → orbital → off-world), with almost all practical benefit available on the terrestrial tiers today. Two operating modes — commit a digest of every consequential record exhaustively; retain full content for a calibration sample only. Record drift as a measurable with three components: content, interpretation, absence. An honest account of the last mile, where every version of this idea is weakest. And five questions any board can ask about its own records this quarter.

A backup answers what survives. A cold standard answers what changed.