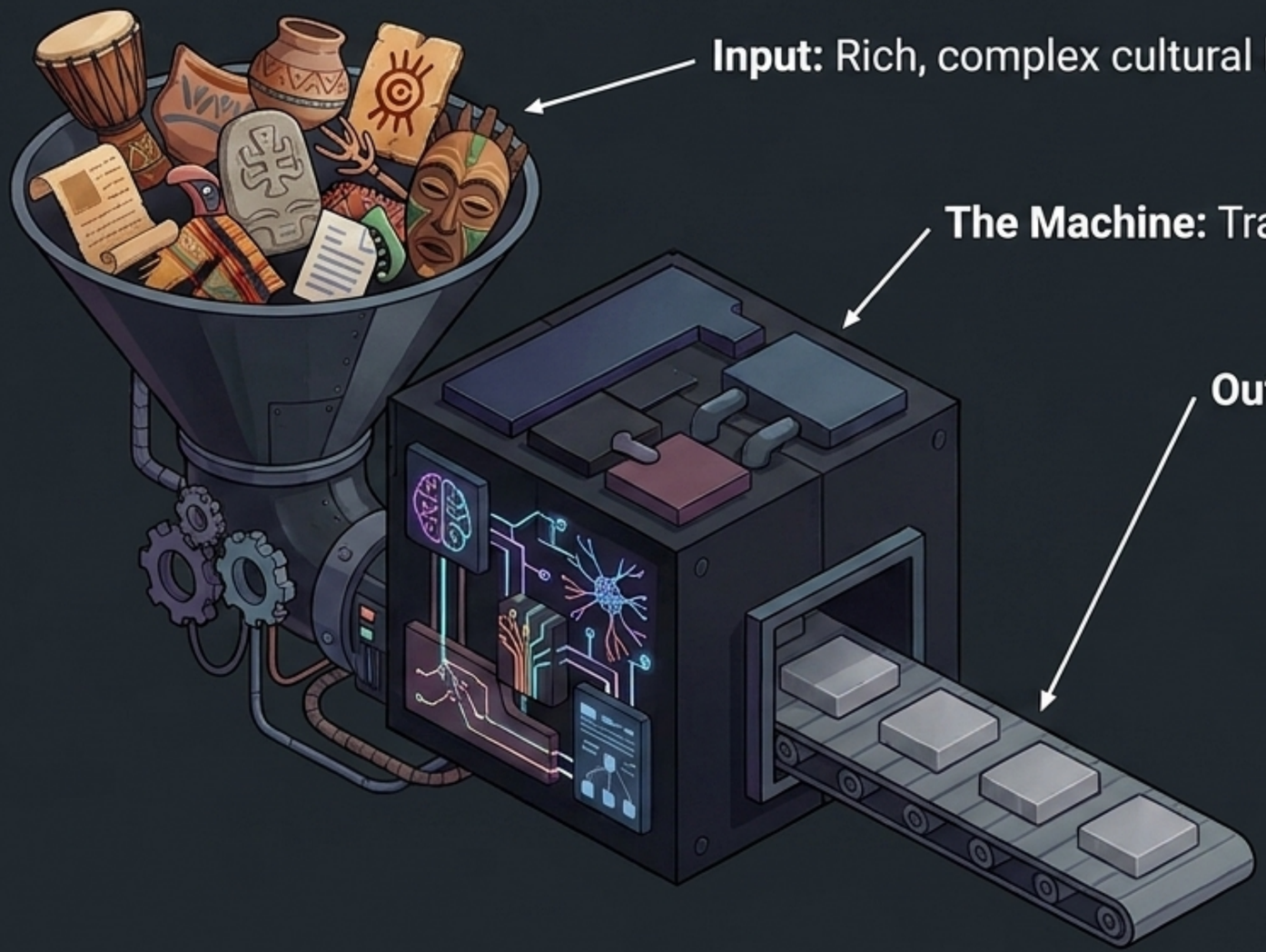
Beyond Automation: AI and the Fragility of History

Shifting from Information Retrieval to Interpretive Infrastructure in Cultural Heritage



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The Illusion of the Magic Box



Input: Rich, complex cultural heritage

The Machine: Traditional Retrieval AI

Output: Flattened, authoritative summaries

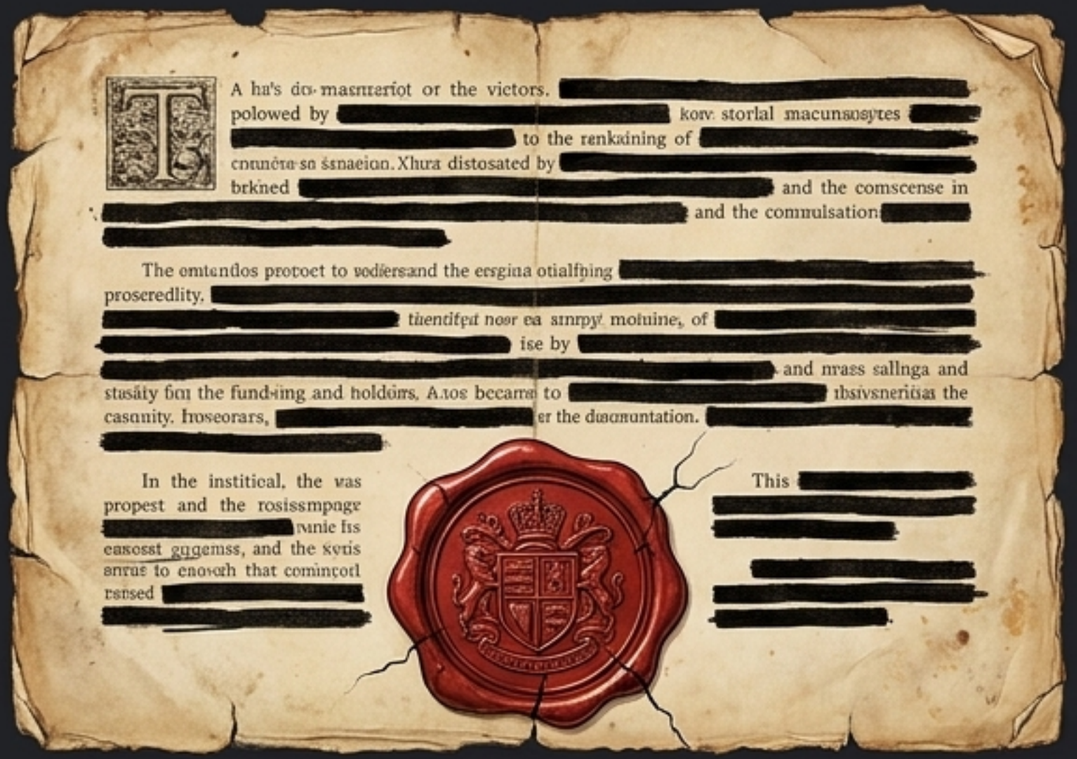
The Contextual Knowledge Gap

Standard AI acts as an information tool that retrieves data while silently stripping away the context of how that knowledge was produced.

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Silently Amplifying Power Imbalances

HISTORY



TECHNOLOGY



1. The Archive is Biased

History is written by the victors. Archival records inherently reflect historical power dynamics and colonial documentation.

2. The AI is Literal

AI systems read what is written. They cannot independently verify the unrecorded or suppressed past.

3. Digital Colonialism

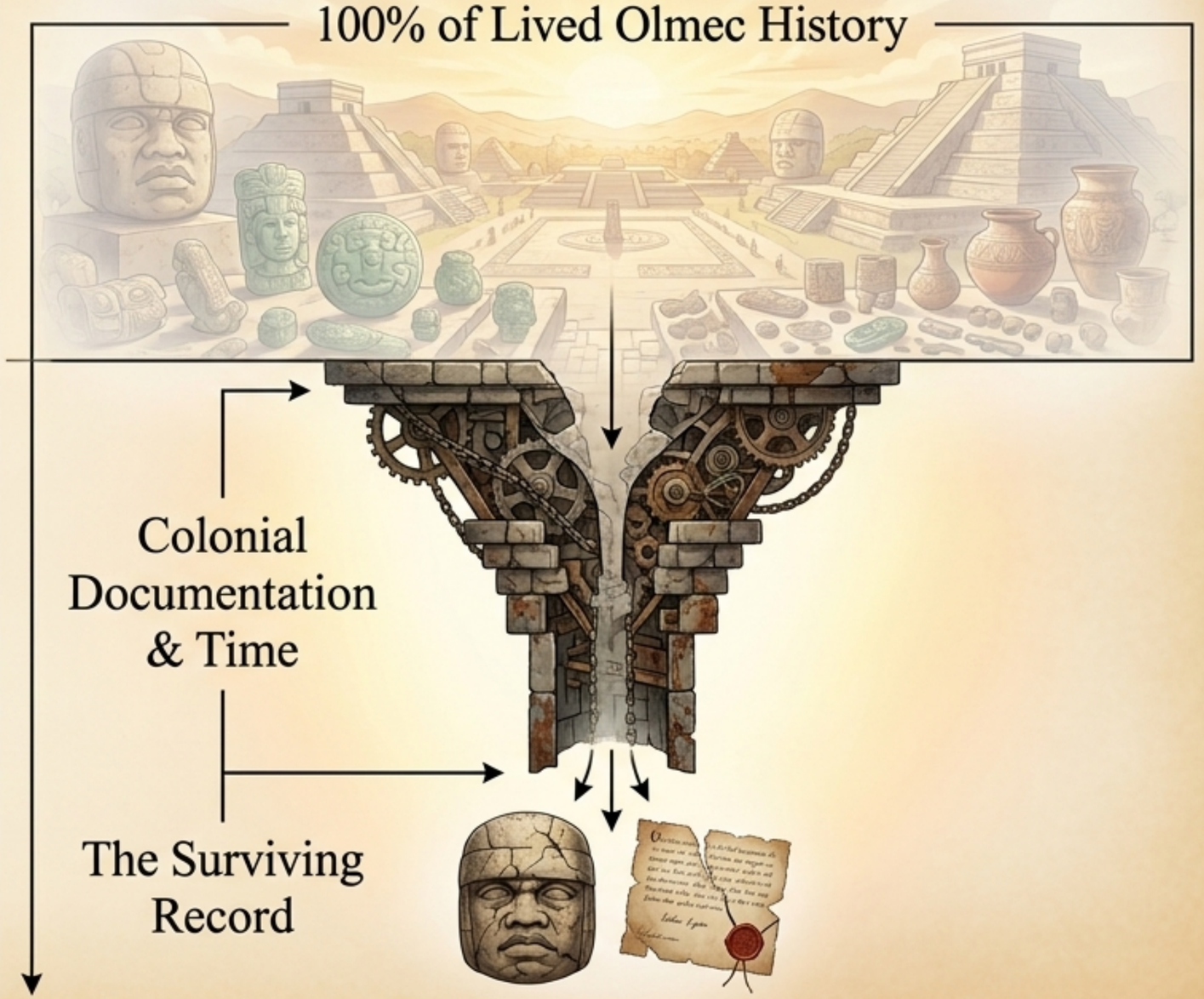
When AI processes marginalized knowledge without acknowledging archive bias, it presents structurally skewed histories as absolute truth.

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The Olmec Dilemma

Project: Ruta de la Obsidiana

- **Challenge:** The Olmec civilization's record is structurally incomplete and subject to ongoing interpretive contest.
- **The Problem:** Traditional AI looks at the tiny Surviving Record and mathematically treats it as the definitive 100% of Lived History.

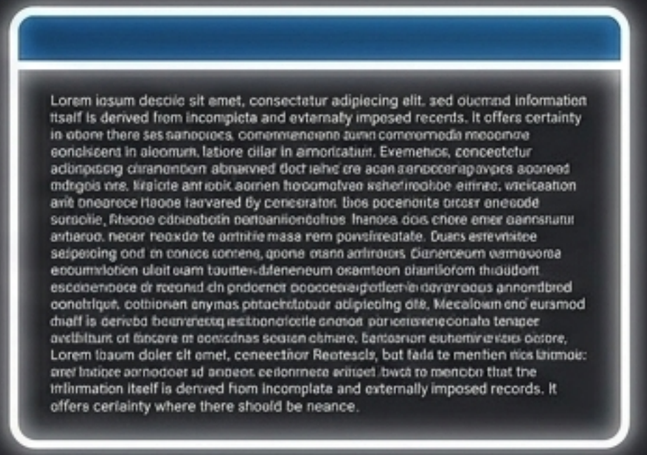


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The Failure of Standard Retrieval

User Query: Describe Olmec urbanisation.





Definitive Summary Generated

Contextual Failure

The AI retrieves the information flawlessly, but fails to mention that the information itself is derived from incomplete and externally imposed records. It offers certainty where there should be nuance.

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The Epiphany



"What a system cannot find or cannot verify matters just as much as what it can retrieve."

Epistemic conditions—the context of how we know what we know—must become visible.

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Enter Epistemic AI: The Heritage Lens

Old Paradigm: AI as an Information Tool

Goal: Find the single right answer.

Method: Hides the messy, contested construction of knowledge behind an authoritative voice.



New Paradigm: AI as Interpretive Infrastructure

Goal: Support human discovery and judgment.

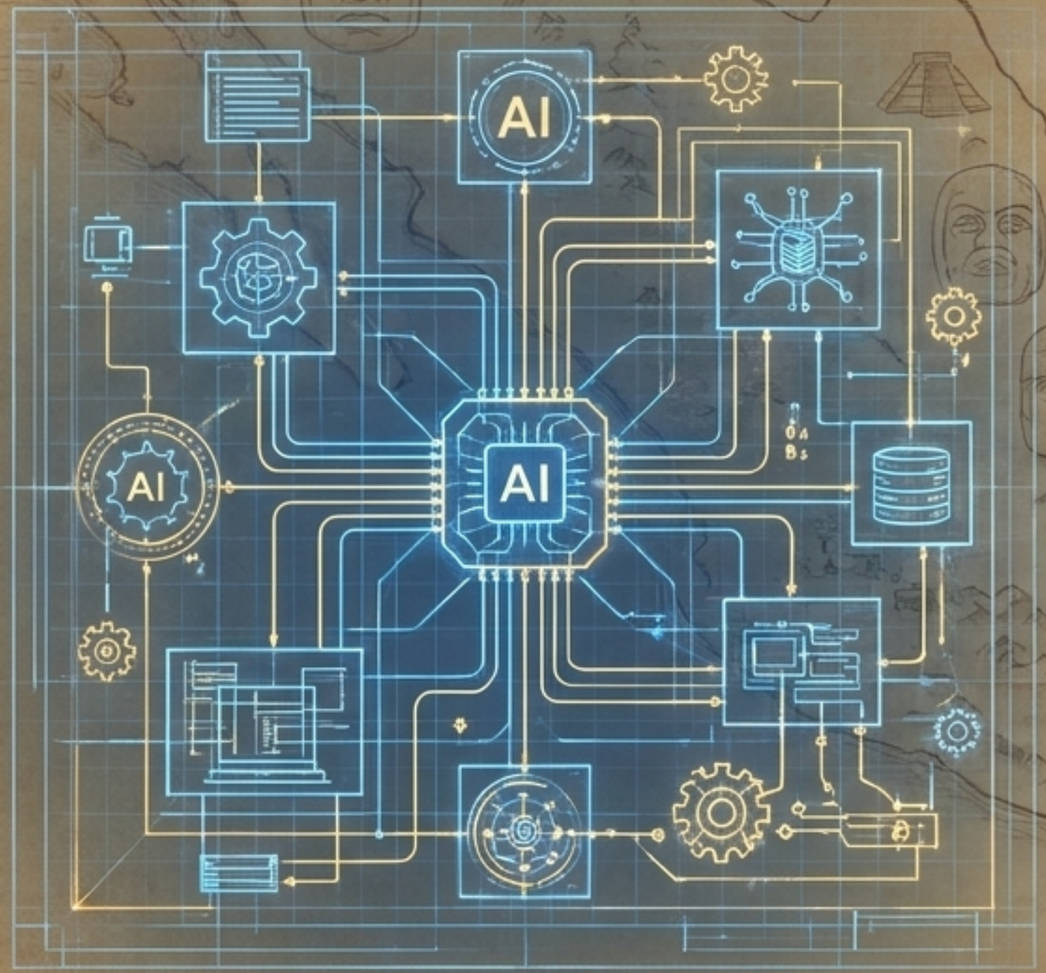
Method: Makes the epistemic conditions of knowledge explicit and transparent.



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The Heritage Lens Agent

HackXelerator AR26
Finalist - Ethics, Agency, and Societal Impact



Accountable Research

Built around rigorous doctoral research on Olmec urbanisation.

Epistemic Responsibility

Refuses to provide a single ‘certain’ answer when evidence is contested or missing.

Methodological Laboratory

Acts as a collaborative workspace that supports human judgment rather than replacing it.

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The Architecture: A Multi-Agent Boardroom

Retrieval Agent (The Librarian)

Gathers the available source material.



Synthesis Agent (The Writer)

Drafts the initial coherent narrative grounded strictly in sources.

Epistemic Agent (The Contextualizer)

The structural innovation that evaluates the nature and boundaries of the knowledge itself.

Critical Agent (The Fact-Checker)

Verifies citations and ensures no logical leaps are made.

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The Epistemic Agent

The structural requirement for culturally sensitive material.

1. Report Absence

Explicitly state what information is structurally missing from the archaeological record.

2. Evaluate Bias

Identify potential colonial, institutional, or historical biases in the retrieved documents.

3. Define Limits

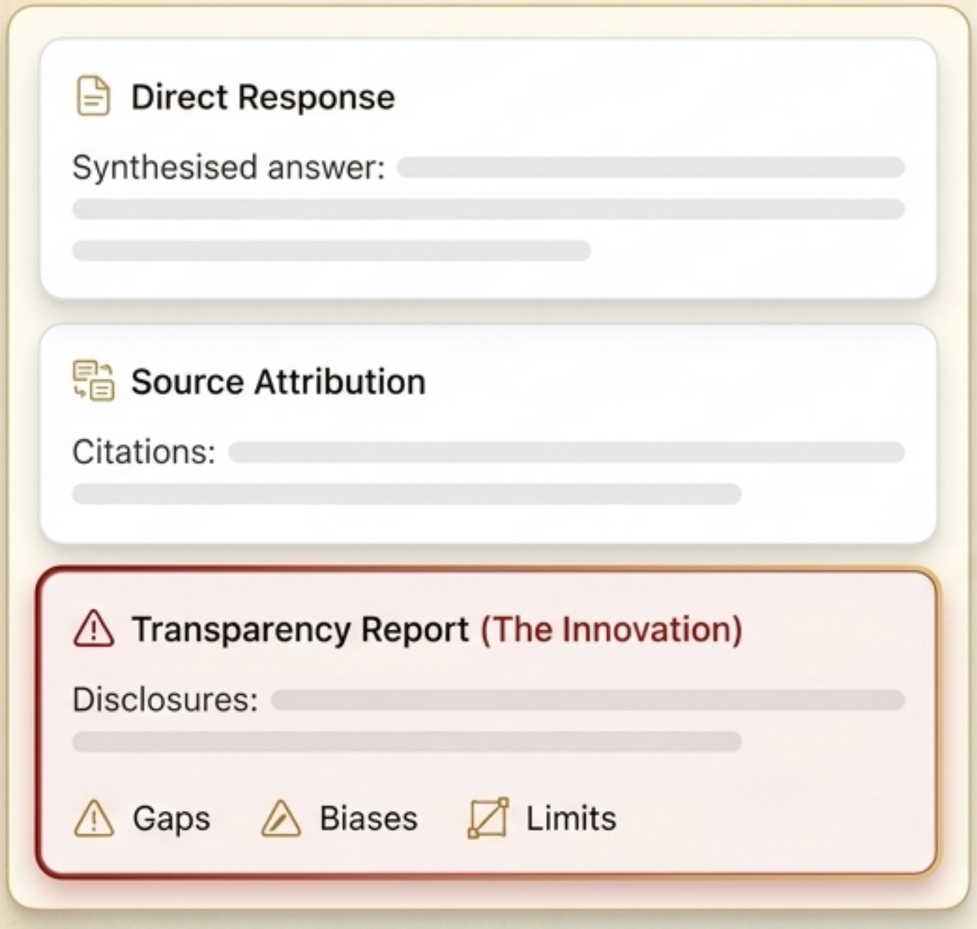
Map the exact boundaries of what can be interpretively claimed from the evidence.

4. Gauge Confidence

Provide a transparent assessment of certainty based on evidence quality, not just statistical likelihood.

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Anatomy of a Responsible Answer



A synthesised answer grounded strictly in verified source materials, free of hallucination.

Complete provenance and unbroken, visible citation for every single claim made in the response.

A distinct, mandatory disclosure section. Features three dedicated warning evaluations detailing the context of the knowledge provided:

Epistemic transparency is delivered as a visible, front-end feature, not hidden in the backend code.

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The New Standard for Cultural Heritage

	Traditional AI (The Black Box)	Heritage Lens Agent (The Prism)
Role:	Information Retriever (A Tool)	**Responsible Mediator** (Interpretive Infrastructure)
Goal:	Provide a single, ‘certain’ answer	Support human discovery and judgment
Handling Bias:	Silently replicates historical power imbalances	Explicitly flags knowledge gaps and archive biases
Missing Data:	Ignored entirely (Creating a Contextual Gap)	**Highlighted as highly critical information**

Transparency is not an optional feature. It is a structural requirement for preserving human heritage.

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