

Responsible AI in Environmental Laboratories

Practical Governance for Privacy,
Traceability, and Human Oversight

Jacques “Jack” Antikadjian

Founder, PLCY

IAS 2026 ELAP Symposium

September 24, 2026

AI Is Entering the Quality System

Laboratories already manage:

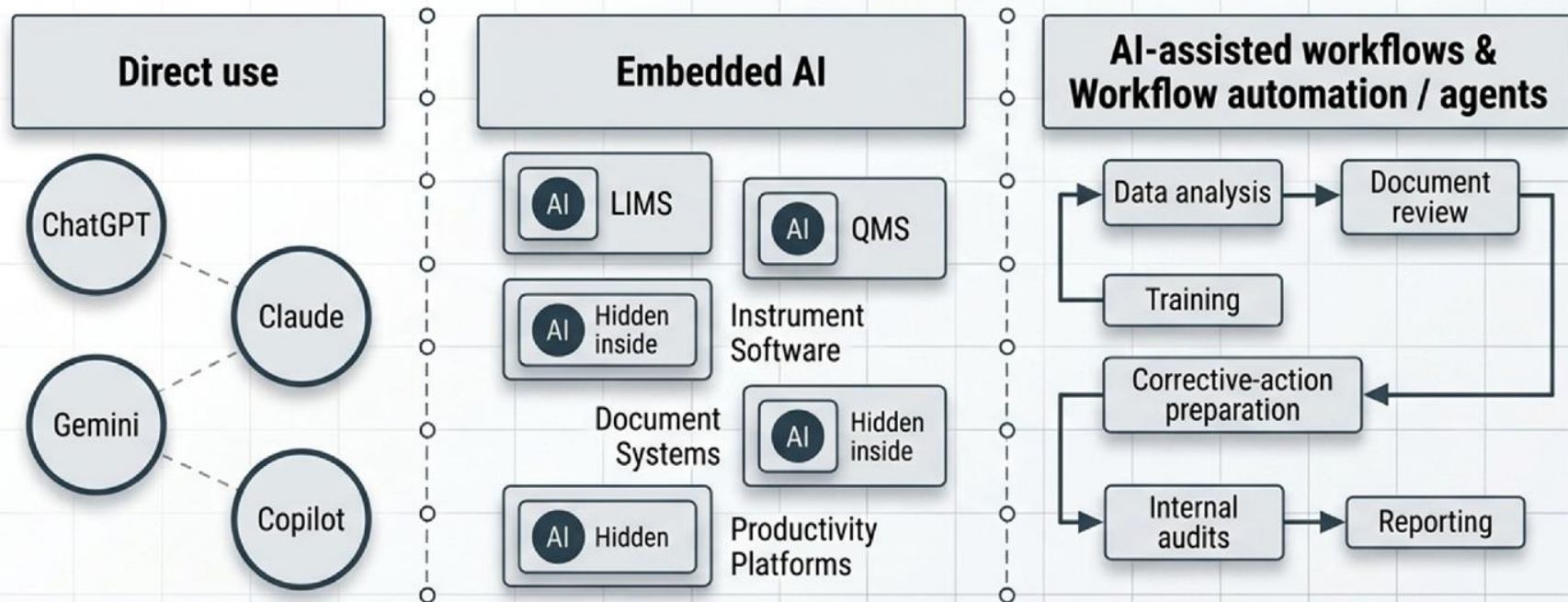
- ✓ Competence
- ✓ Impartiality
- ✓ Controlled processes
- ✓ Data integrity
- ✓ Records
- ✓ Confidentiality
- ✓ Traceability

AI introduces:

- ⚠ New data flows
- ⚠ New software and vendors
- ⚠ New sources of error
- ⚠ New decision pathways
- ⚠ New evidence requirements

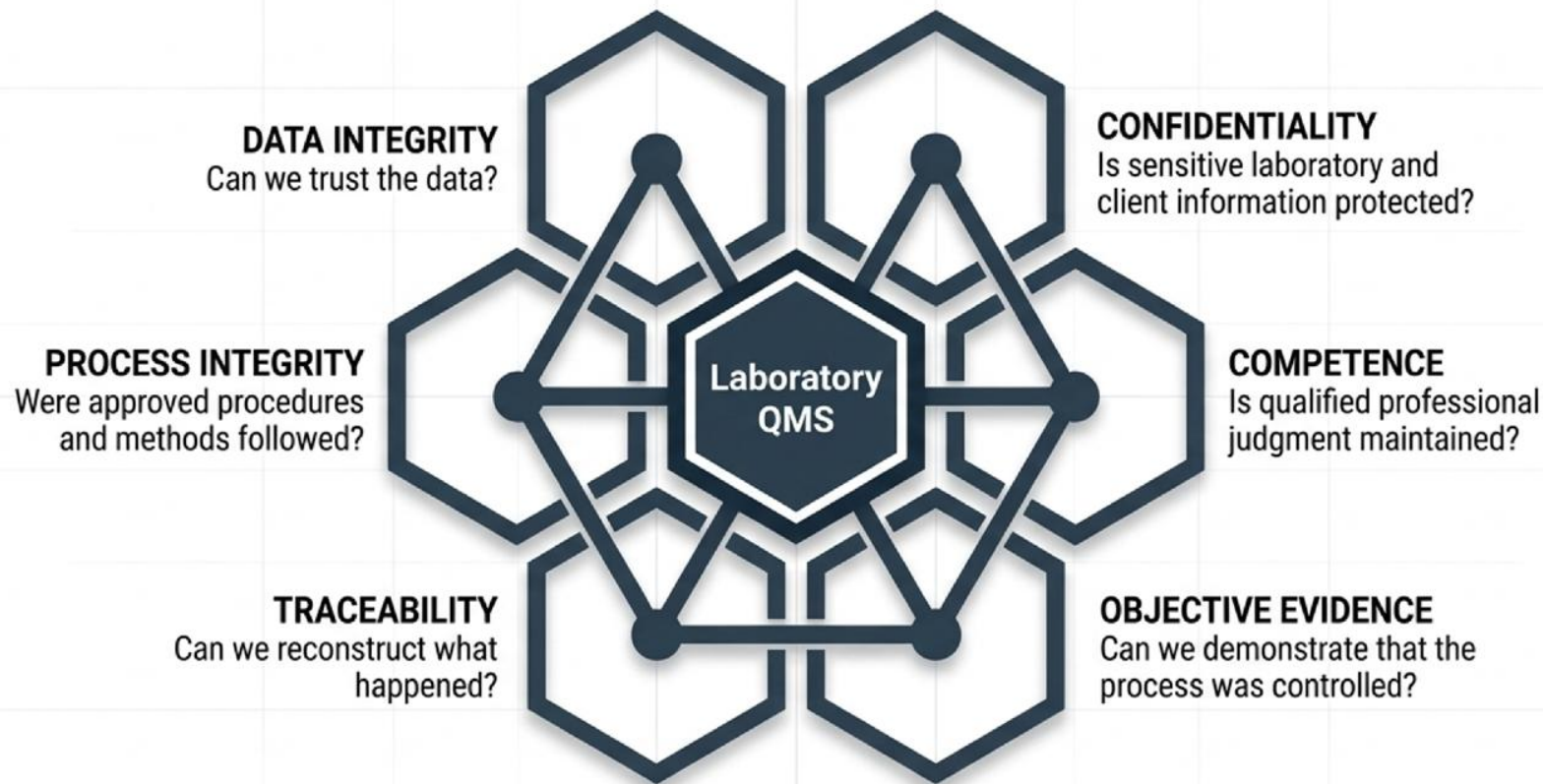
AI does not replace the laboratory quality system. It becomes another technology that must operate within it.

AI Is Bigger Than ChatGPT



The first governance question is not "Are we using AI?" It is "Where is AI already touching our workflow?"

The Laboratory's Protected Assets

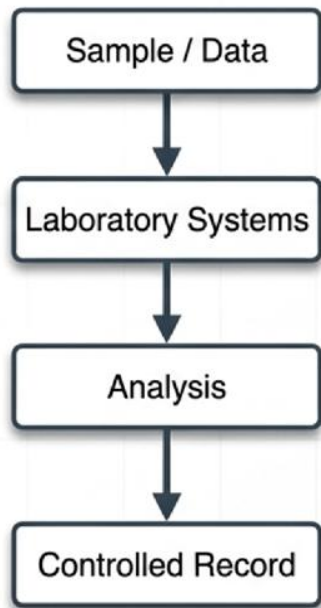


Governance must preserve the core assets of the laboratory.
AI governance should preserve the things the laboratory quality system already exists to protect.

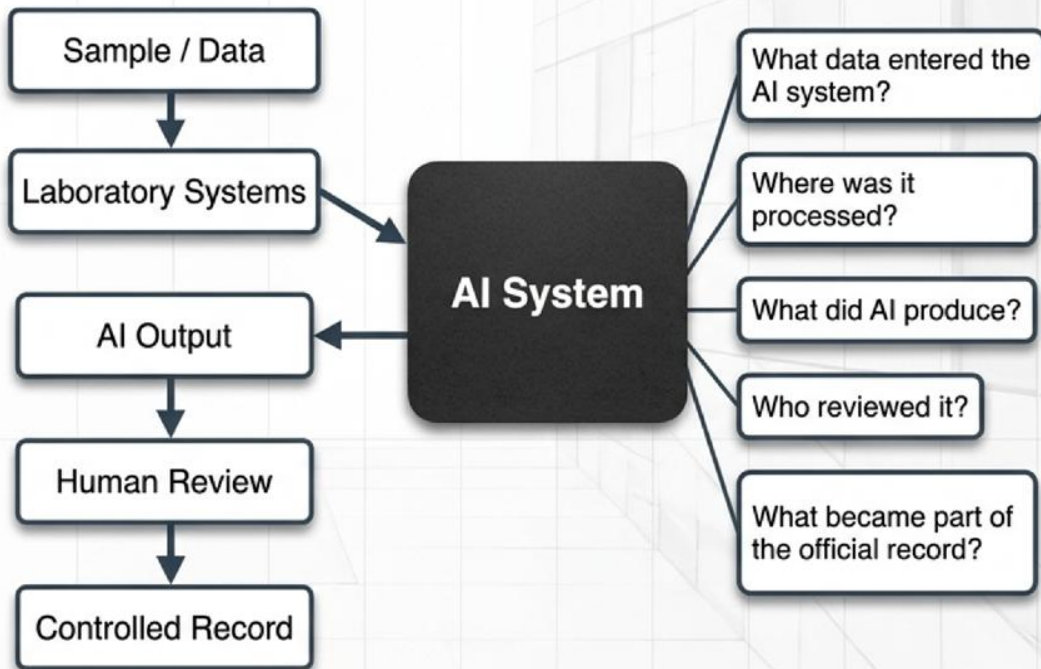
AI Creates a New Data Path

Where Does the Data Go?

Traditional Pathway



AI-Enabled Pathway



AI Can Augment Laboratory Expertise

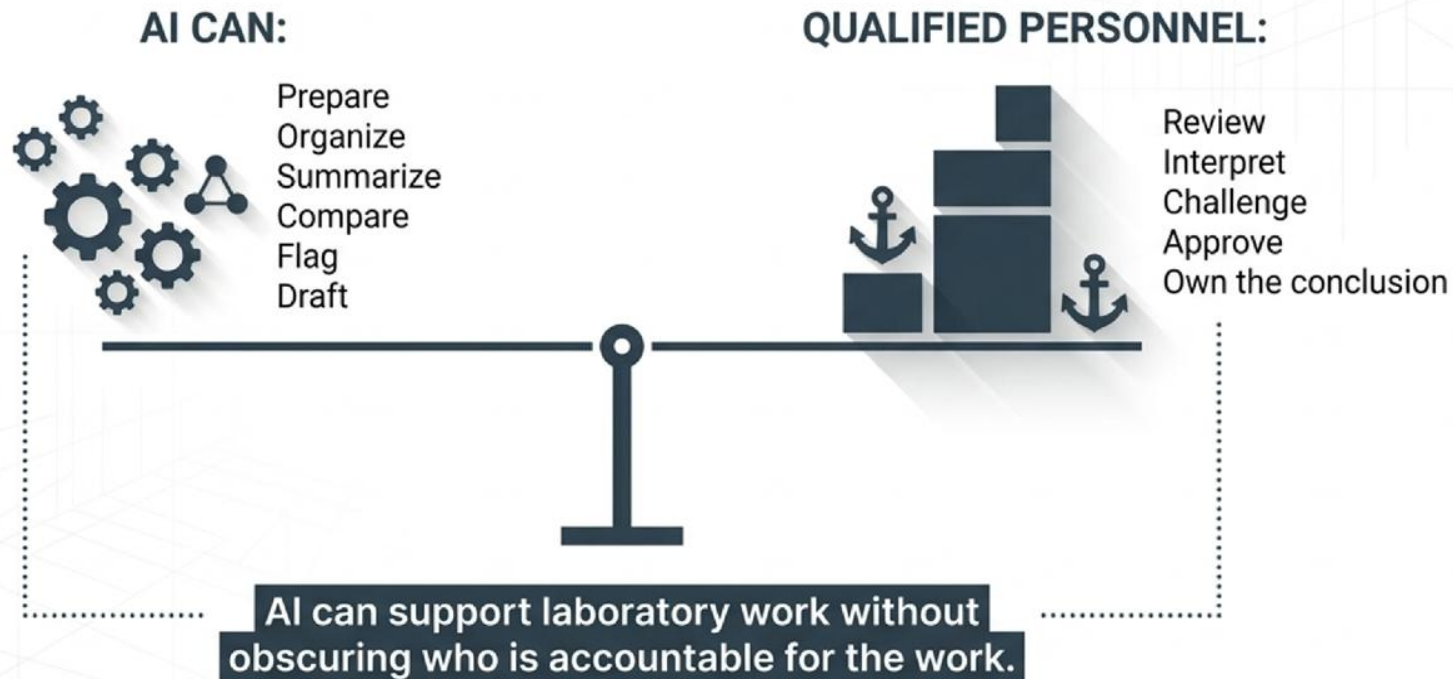
The opportunity is to augment laboratory expertise, not replace it.

DATA & ANALYTICS • Pattern detection • Anomaly identification • Data review	QUALITY • Internal-audit preparation • Corrective-action assistance • Document review
OPERATIONS • Training • Documentation • Workflow assistance	INSTRUMENTATION • Monitoring • Predictive maintenance • Calibration support

Preserve control of the work while enhancing capability.

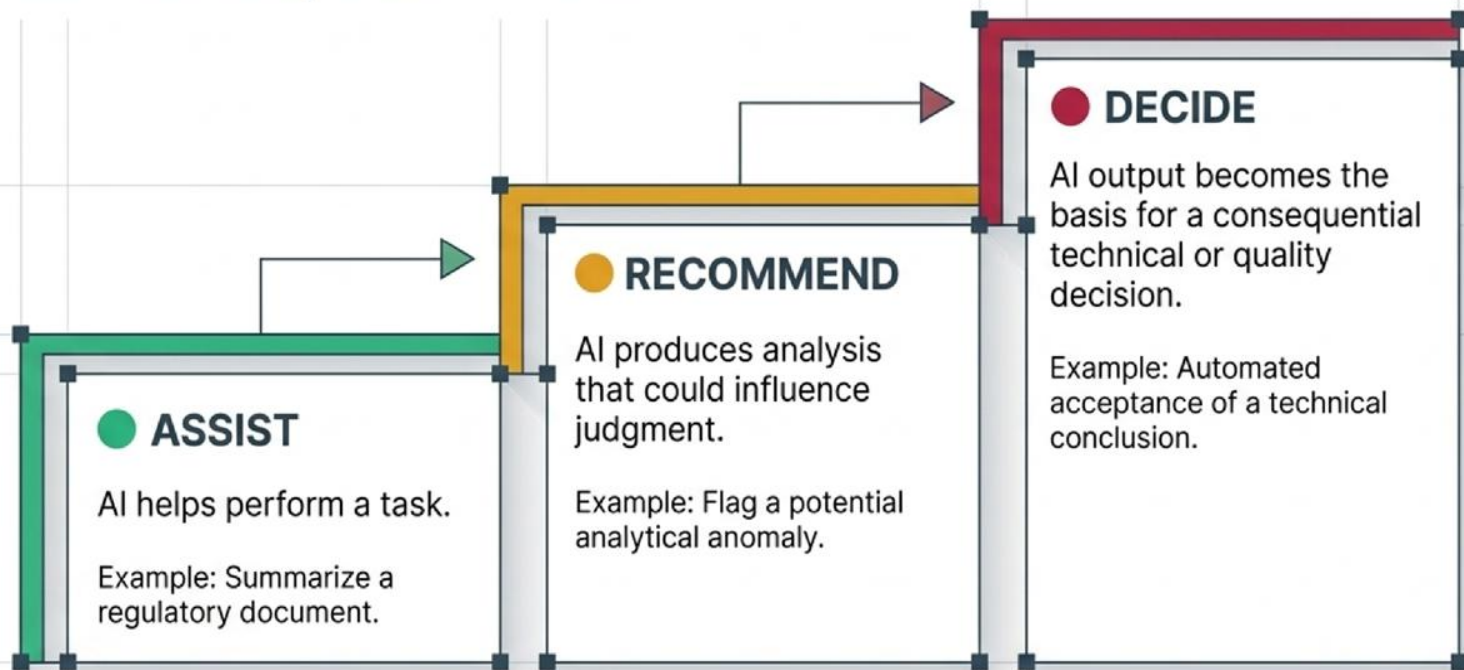
AI Can Assist. Accountability Must Remain Clear.

AI's Role Matters



Three Levels of AI Risk

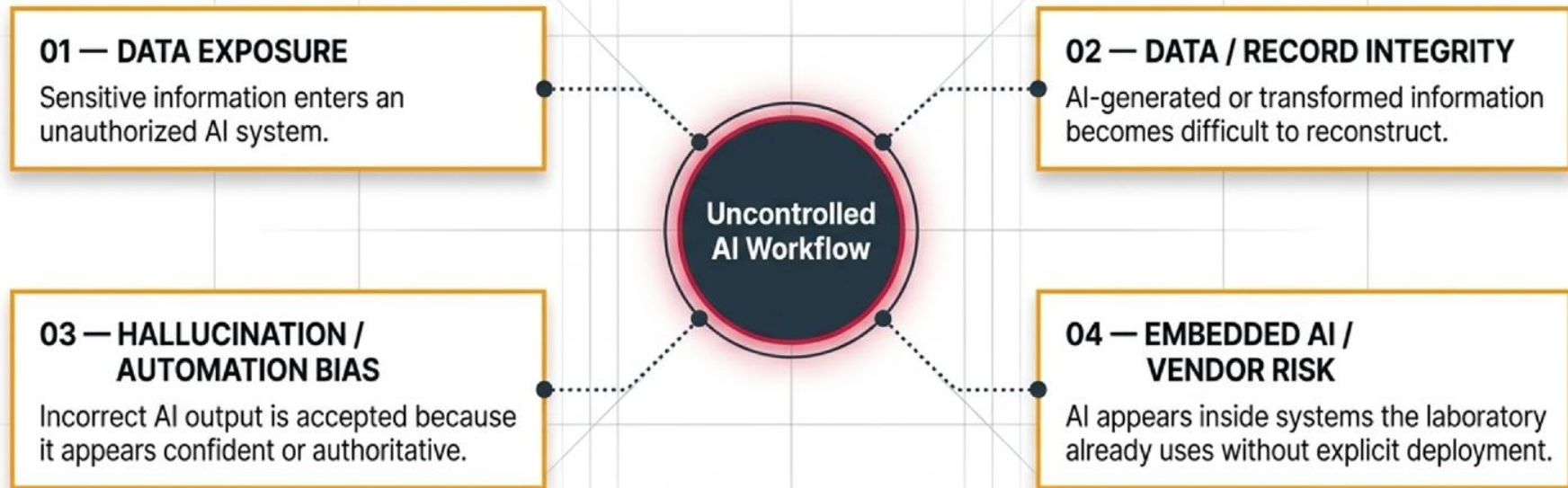
How Much Authority Does AI Have?



The closer AI gets to a final decision, the stronger the governance controls must be.

What Can Go Wrong?

The Four AI Risks



The risk isn't simply that AI can make a mistake.
The threat is that AI alters a controlled process without governance.

Governance ≠ Validation

Two Different Questions

GOVERNANCE	VALIDATION / FITNESS FOR PURPOSE	
The 'Control' Framework	The 'Performance' Framework	
• Should we use AI for this task? • Who can use it? • What data can it access? • What is it authorized to do? • When is human review required? • What evidence should be retained?	Does the system perform adequately for its intended use?	
	Accuracy	Reliability
	Performance	Limitations
	Testing	Monitoring

Validation proves it works. Governance dictates how we control it.
A well-governed AI system can still be the wrong tool.
A highly capable AI system can still be poorly governed.

Five Questions Before AI Enters a Controlled Workflow

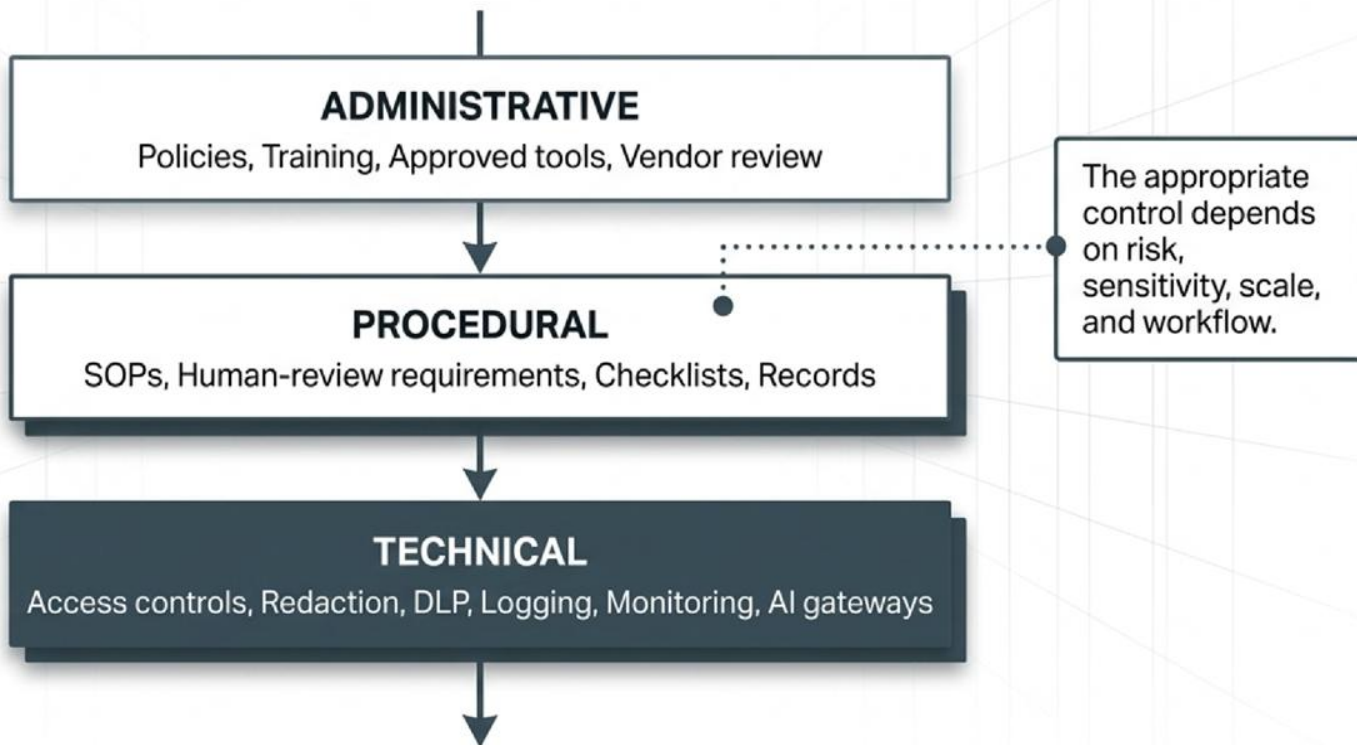
Ask These Five Questions

01	Who is authorized to use it?
02	What is AI approved to do?
03	What data can it access?
04	What level of qualified human review is required?
05	What evidence should be retained?

If you cannot answer these questions, you may not yet have a governed AI workflow.

From Policy to Operational Control

A written policy is only the starting point of control.



What Would You Show an Assessor?

Imagine the Question: "Show me how your laboratory controls AI use."

GOVERNANCE

- ✓ Approved AI tools
- ✓ Approved use cases
- ✓ AI policy

DATA

- ✓ Data boundaries
- 🔒 Vendor controls
- 🔒 Protection / redaction

HUMAN OVERSIGHT

- ⚙️ Reviewer
- 👤 Approval
- 🔍 Exception handling

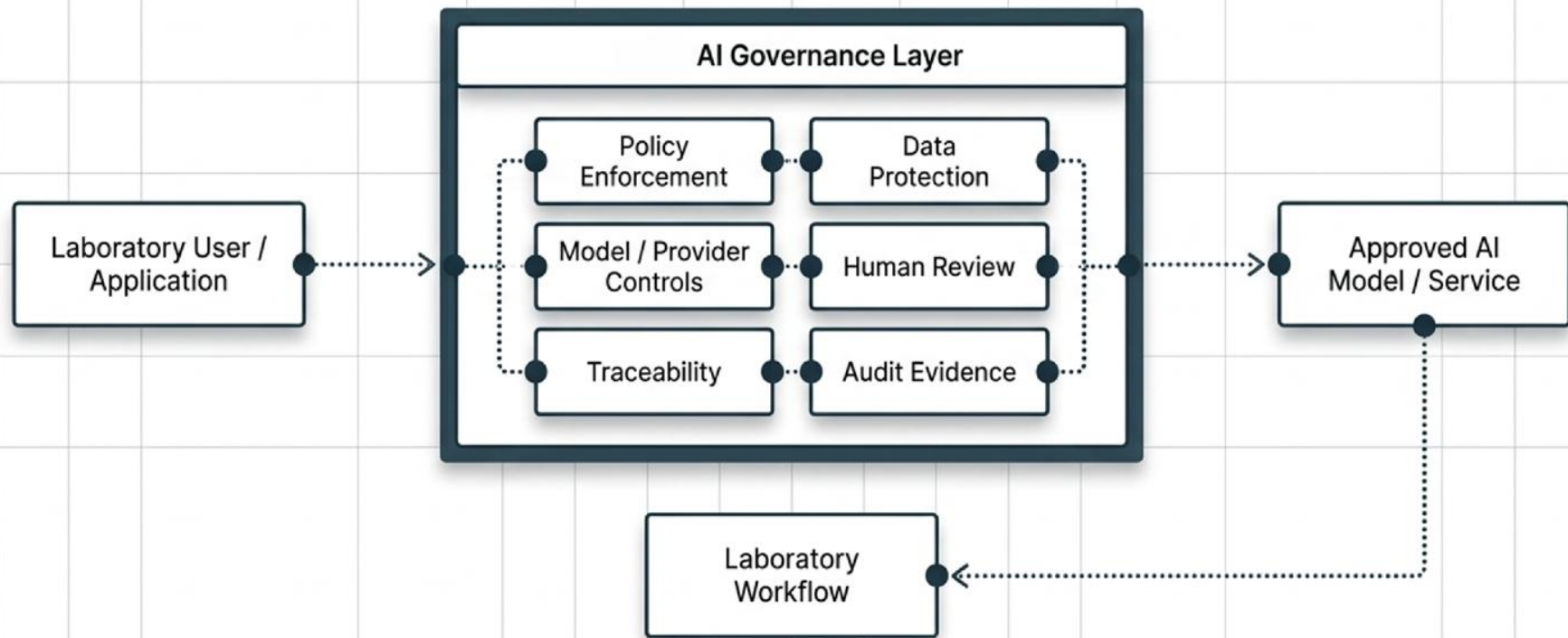
EVIDENCE

- 📄 AI-assisted records
- 📋 Audit trail
- 📄 Changes
- 📋 Corrective action

The objective is not to prove that AI was never used.

The objective is to demonstrate that AI use was appropriate, controlled and reviewable.

Operationalizing AI Governance: Moving from paper policies to technical control.



PLCY is being built around one simple concept: move AI governance from policy documents into operational control.

AI Should Strengthen the Laboratory Quality System

Not create an uncontrolled parallel process.

DATA — Protect what enters AI.

PROCESS — Control how AI is used.

DECISION — Keep decision authority clear.

HUMAN — Preserve qualified judgment.

EVIDENCE — Make AI-assisted work reviewable.

Responsible AI isn't about stopping innovation.

It's about making AI use visible, controlled, human-accountable, and traceable.