

# 95% OF ENTERPRISE AI PILOTS FAIL. THIS IS THE AI VALUE CHASM.

The promise of enterprise AI is transformative: a conversational layer to talk to data, discover what happened, why, and what to do next.

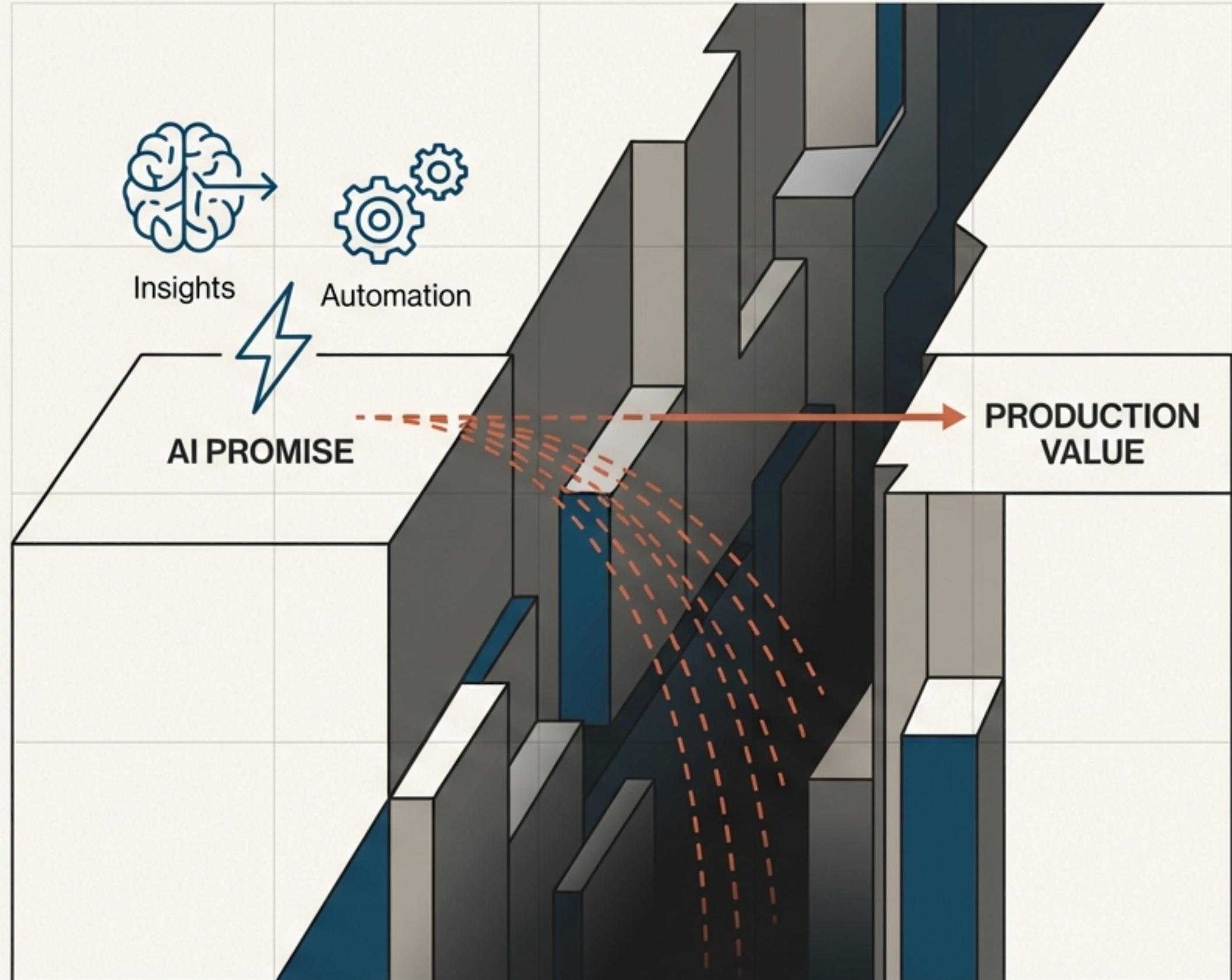
Yet, research from MIT Sloan reveals a harsh reality: 95% of these initiatives fail to make it into production.

This gap between promise and reality is the AI Value Chasm.

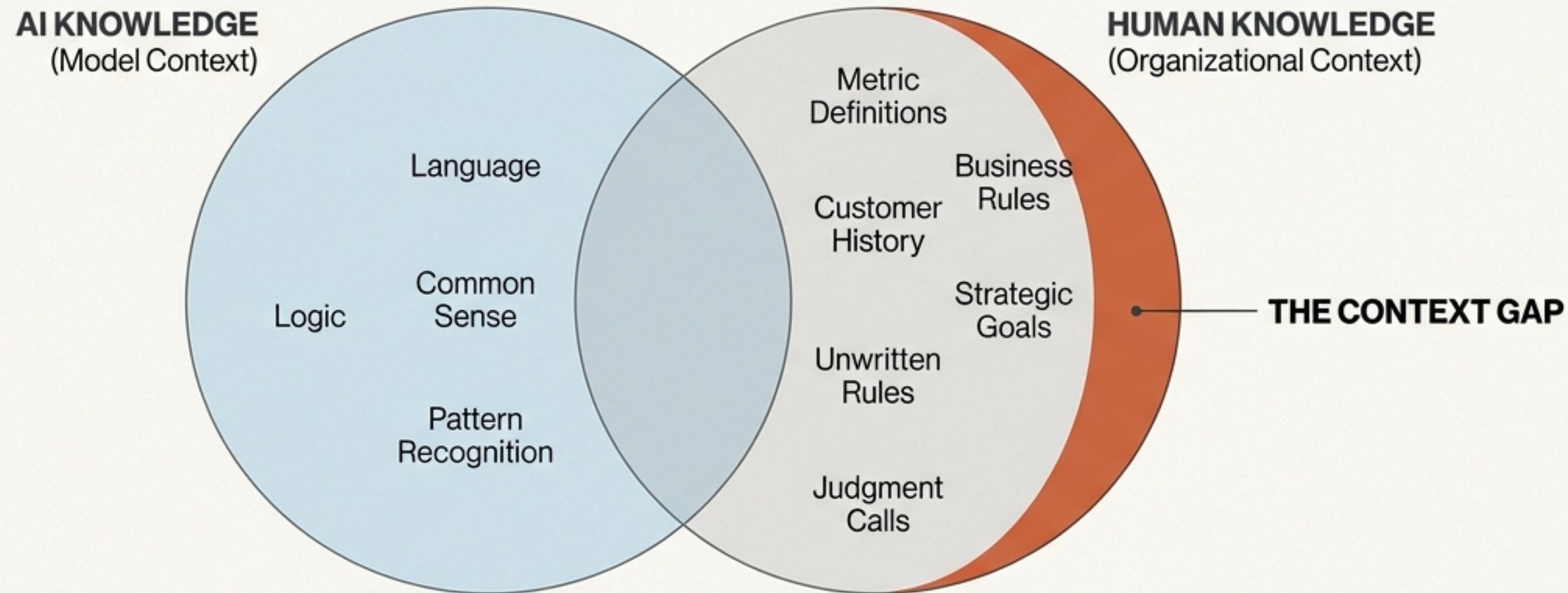
We aren't failing at building models; we're failing at making them understand our business.

**“Talking to data was one thing, but being understood was another.”**

– Shubham Bhargav



# THE ROOT CAUSE IS A CONTEXT GAP.



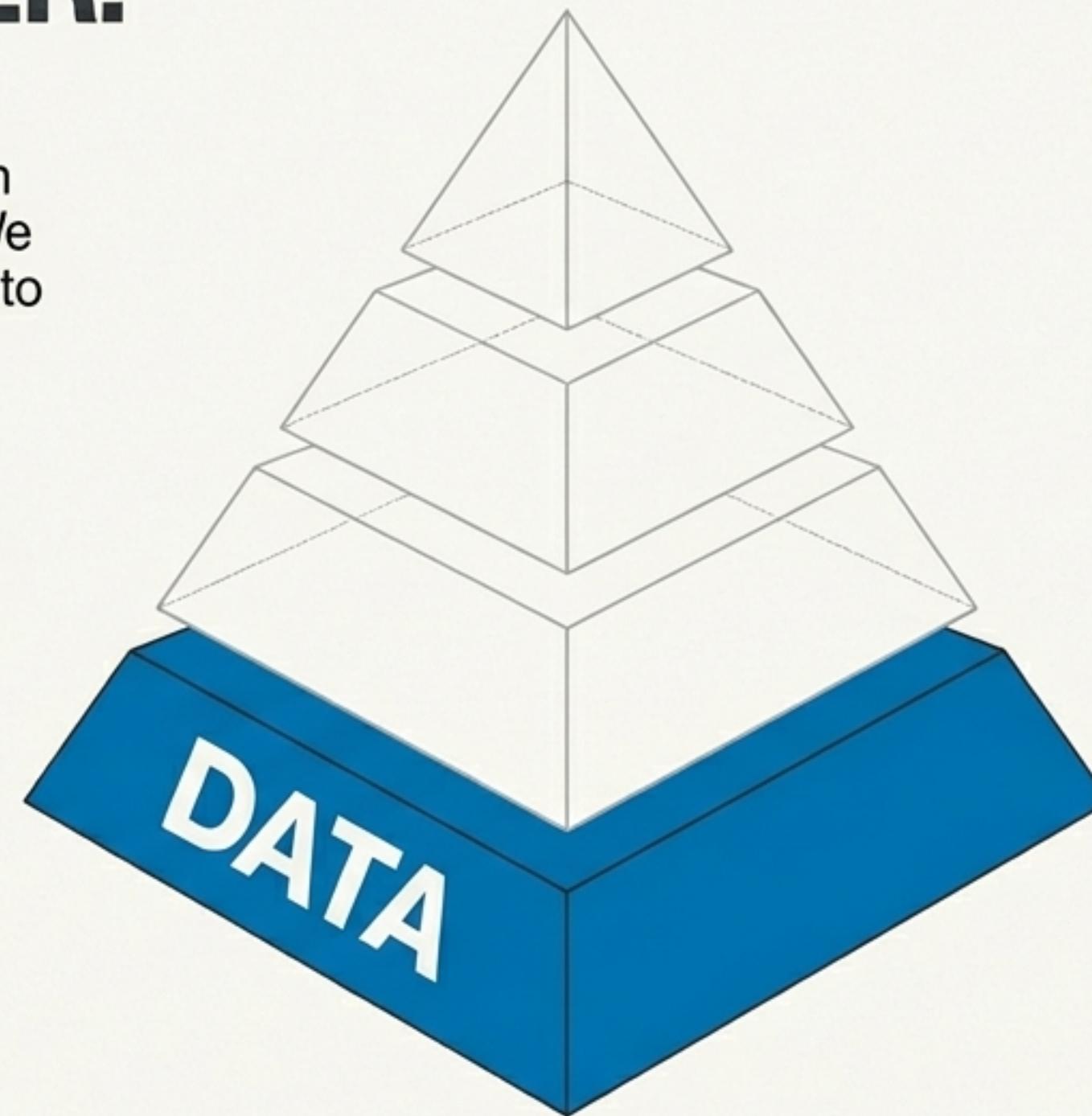
AI systems fail because they lack the context needed to reason accurately. They don't understand the definitions, metrics, unwritten rules, and judgment calls that live inside an organization and its people. This space between what AI knows and what humans know is the **Context Gap**.

Working with customers like Workday, we've achieved a **5x increase in response accuracy** by engineering context into AI systems.

# CLOSING THE GAP REQUIRES BUILDING A KNOWLEDGE INFRASTRUCTURE, LAYER BY LAYER.

AI-ready data isn't found; it's built upon a structured foundation of meaning. We must move from the chaos of raw data to an ordered system of knowledge.

This journey is like constructing a pyramid, where each layer supports the next, enabling more sophisticated intelligence.



## The Semantic Wilderness



**Data Silos:** Fragmented information prevents a unified view.



**Noise & Inaccuracy:** Irrelevant or erroneous entries lead to spurious correlations.

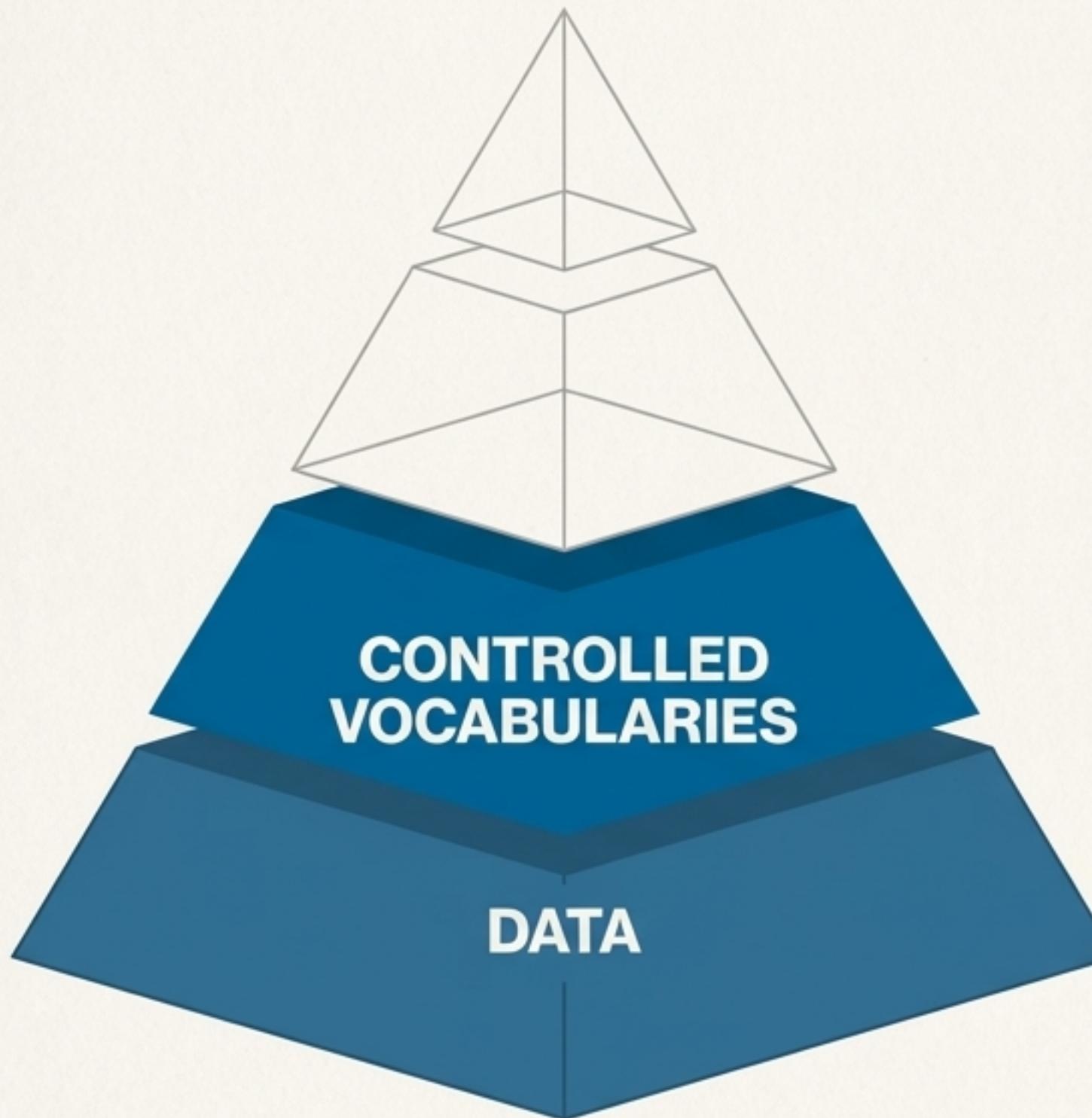


**Bias:** Training data reflecting historical inequalities perpetuates those biases.



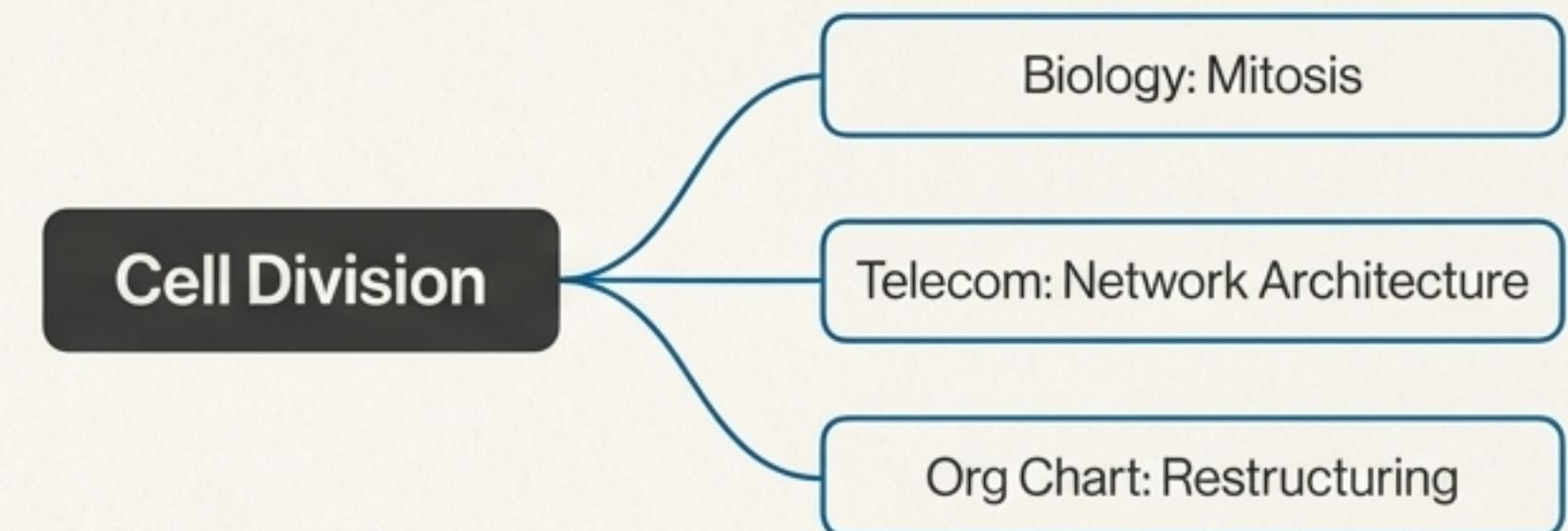
**Staleness:** In dynamic environments, data quickly becomes outdated.

## LAYER 1: WE ESCAPE THE ‘PROBABILISTIC FOG’ WITH CONTROLLED VOCABULARIES.



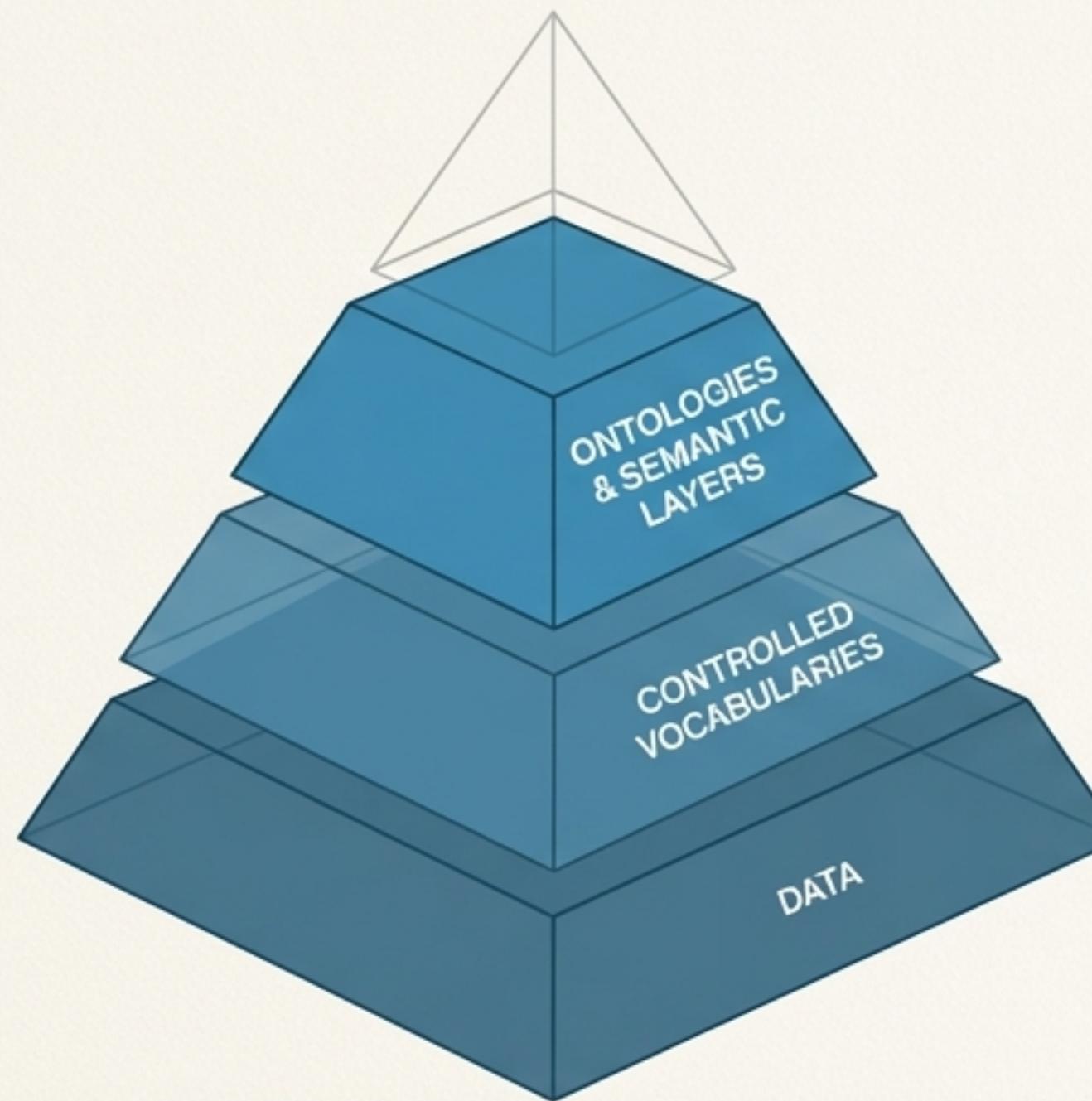
Large Language Models operate on probability, guessing the next word. Without anchors, this leads to a “probabilistic fog” of plausible-sounding but incorrect outputs.

Controlled vocabularies provide these anchors. They are not just lists of terms; they are an intentional arrangement of concepts that create ‘semantic rails’ for AI. They transform the AI’s task from “guess the most statistically probable meaning” to “reference the established definition for this context.”

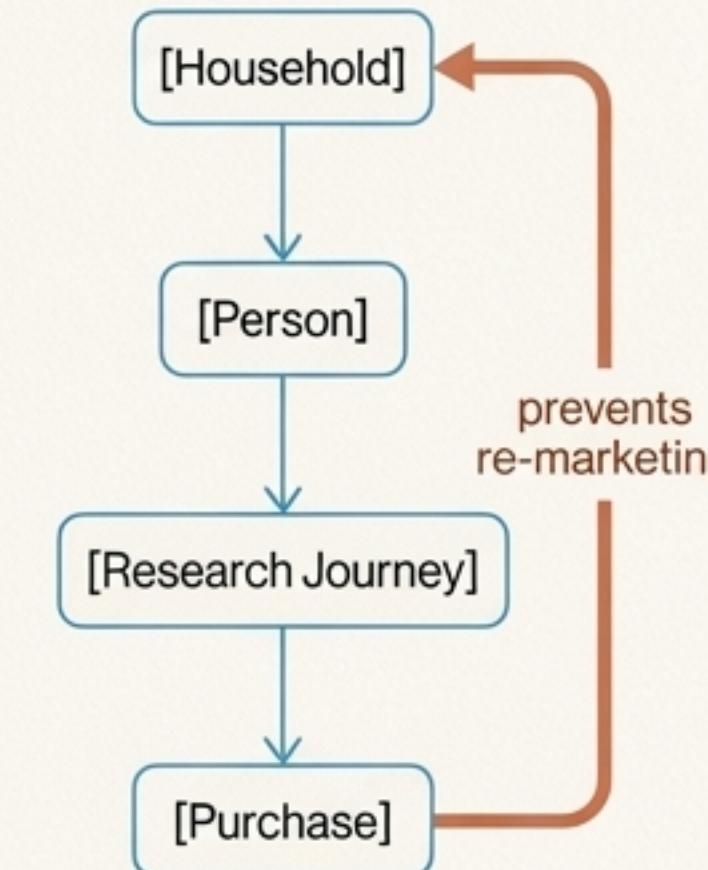


## LAYER 2: WE MAP BUSINESS REALITY WITH AN ENTERPRISE ONTOLOGY

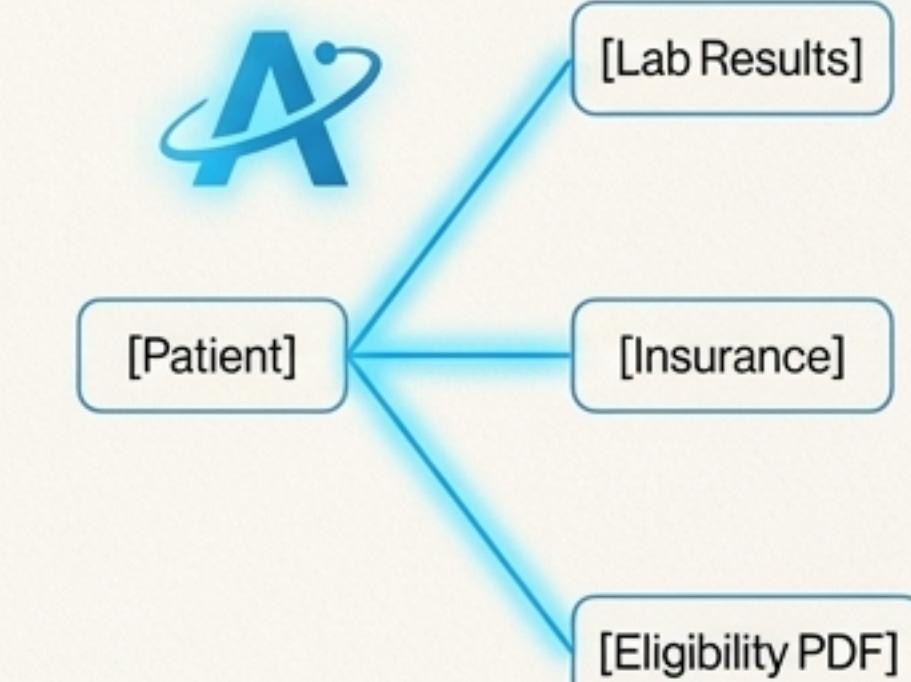
An ontology is more than a vocabulary; it's a shared map of what matters to the business and how those things relate. It models high-value entities (customers, products, policies) and their relationships (owns, purchased, is-eligible-for) regardless of where the data lives. For agentic AI, the ontology is the playbook.



The Car Sold Twice

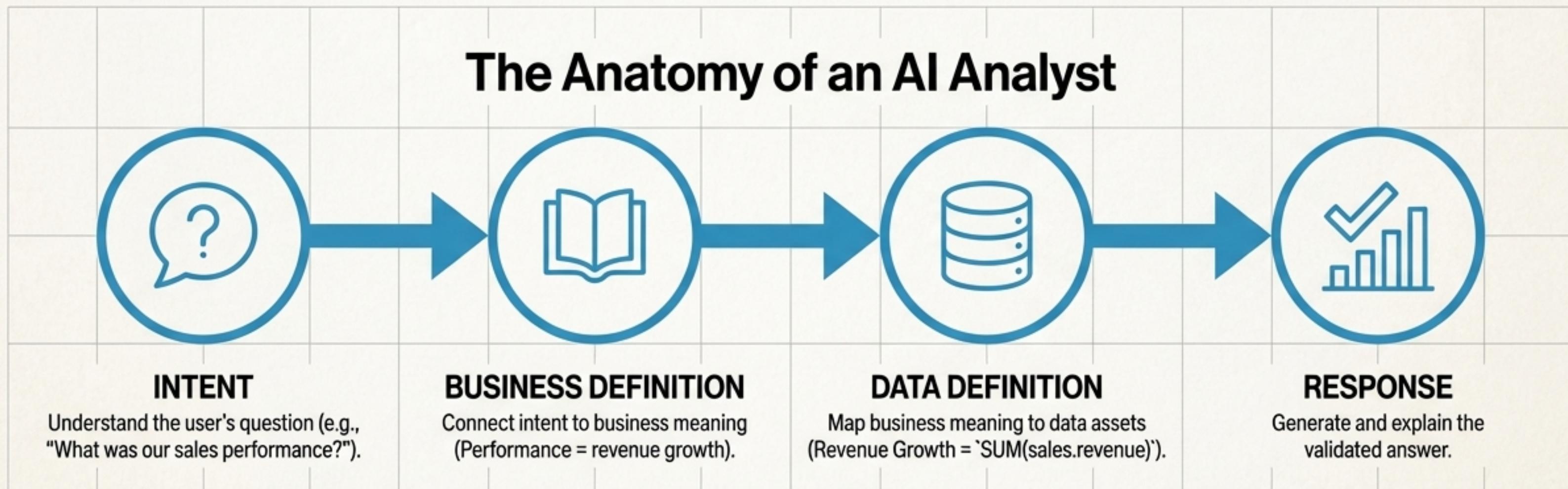


Clinical Trial Eligibility



# THE DISCIPLINE OF BUILDING THE STACK IS CONTEXT ENGINEERING.

An AI Analyst's accuracy doesn't depend on model size, but on how well it understands the *meaning* behind data.  
Context Engineering is the practice of systematically embedding organizational knowledge into AI systems.  
It mirrors how a human analyst reasons, moving from a user's question to a validated answer.

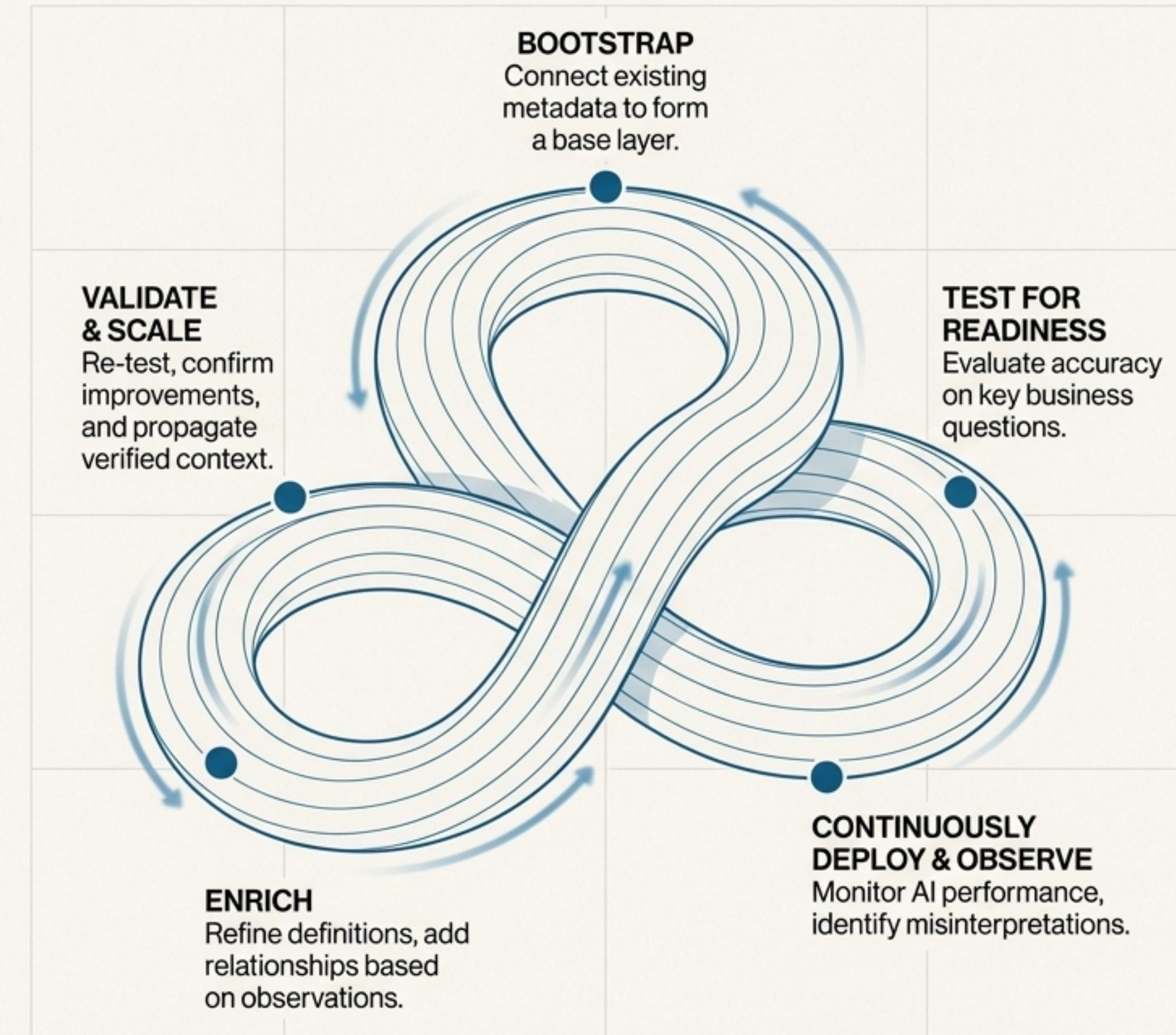


**Model Context × Organizational Context = Real Understanding**

# A CONTEXT SUPPLY CHAIN ENSURES SEMANTIC QUALITY OVER TIME

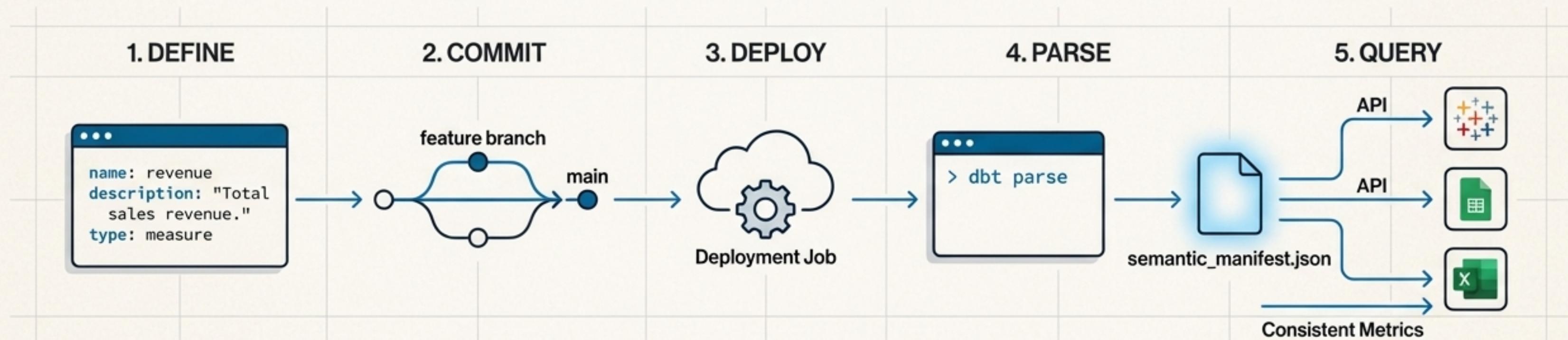
Just as data pipelines ensure data quality, a context supply chain ensures semantic quality—quality—the consistency and correctness of meaning. This is not a one-time setup but a living loop that makes organizational knowledge an evolving system that keeps pace with the business.

*“Like data, context decays over time: definitions evolve, new metrics emerge, and teams reinterpret goals. That’s why context engineering must be continuous.” – S. Bhargav*



# IN PRACTICE, THIS IS AN ENGINEERING WORKFLOW, NOT AN ABSTRACT IDEA.

The semantic layer is not magic. It is a set of defined assets within a data development lifecycle. Deploying metrics involves a standard engineering process of defining, parsing, and running jobs in a deployment environment.



# A WORKED EXAMPLE: FROM NATURAL LANGUAGE TO VALIDATED LOGIC.



An executive asks: "How has customer satisfaction trended in Europe for our enterprise customers this year?"

## → STEP 1: DISSECT THE QUESTION

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'How has **customer satisfaction** trended in **Europe** for our **enterprise customers** this **year**?'

- Measure: **Customer Satisfaction**
- Dimensions: **Europe**, **Enterprise Customers**
- Filter: **This Year**

## → STEP 2: TRANSLATE BUSINESS TERMS

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**Customer Satisfaction**

Glossaries → Semantic Layer  
Descriptions → Semantic Layer

csat\_score ✕  
satisfaction\_rate ✕

nps\_score

## → STEP 3: MAP SEMANTIC REASONING

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### Semantic Similarity

Matches "customer satisfaction" to descriptions of 'nps\_score'.

### Data Matching

Validates "Europe" against values in the 'country' column.

### Relationship Validation

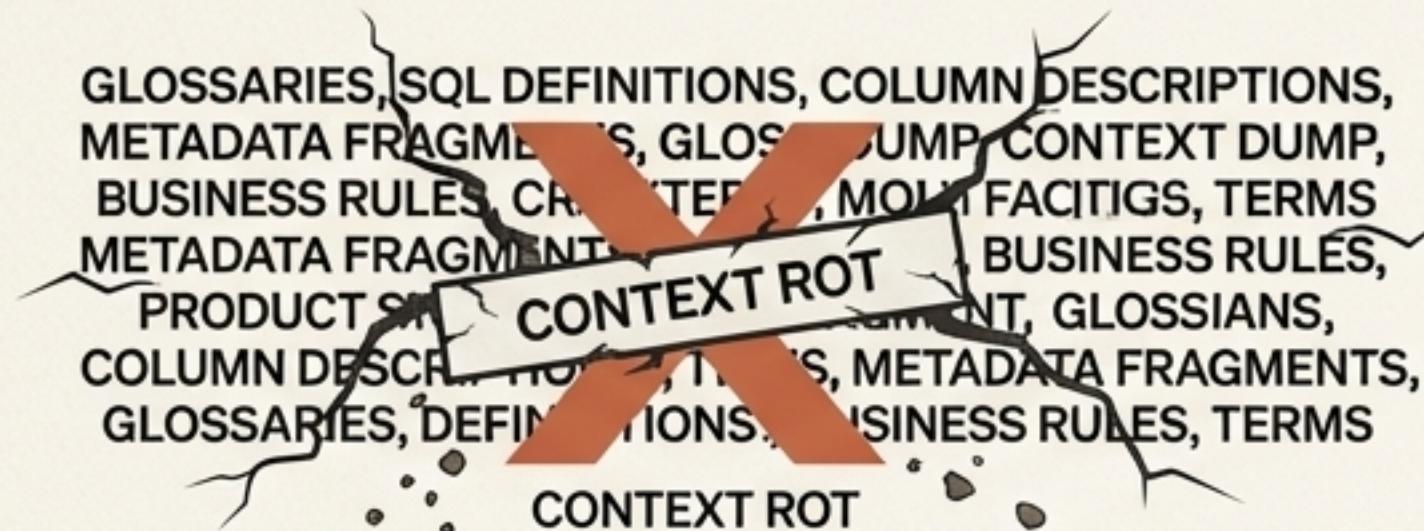
Ensures measures and filters come from connected tables.

```
SELECT
    date_trunc('month', order_date),
    avg(nps_score)
FROM fact_orders
WHERE region = 'Europe'
    AND customer_segment = 'Enterprise'
    AND year(order_date) = current_year()
GROUP BY 1
```

# TWO COMMON ANTI-PATTERNS WILL BREAK YOUR AI.

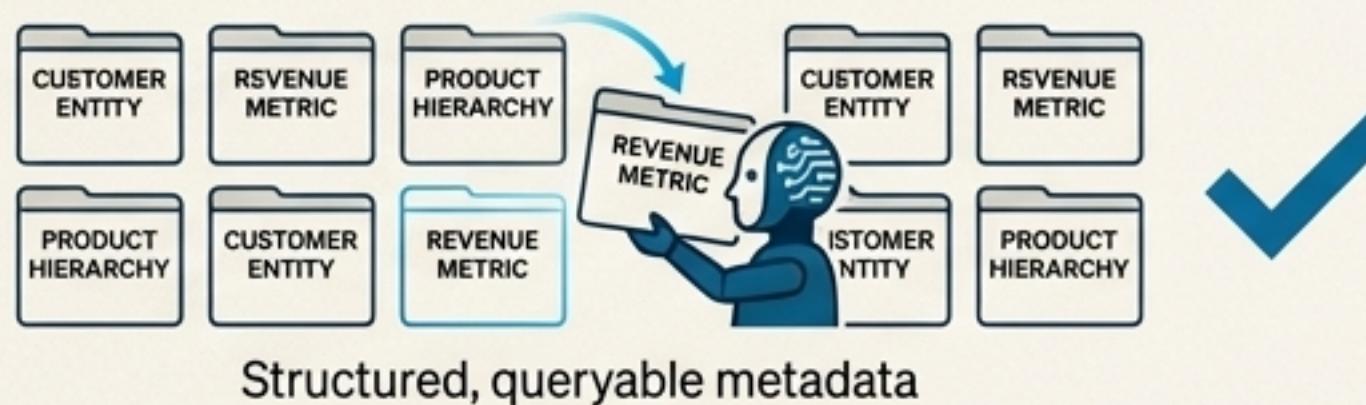
The most common mistakes stem from treating context as a simple string of text rather than a structured system.

## ANTI-PATTERN 1: DON'T DUMP CONTEXT INTO PROMPTS.

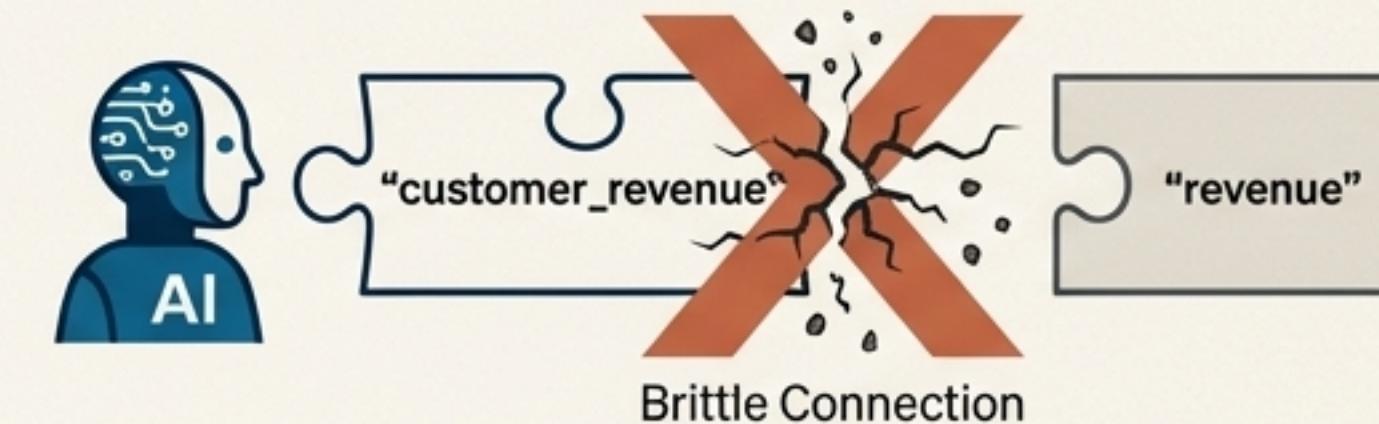


**Why it Fails:** This breaks down as complexity grows, causing ambiguity collisions and making debugging impossible.

### The Solution:

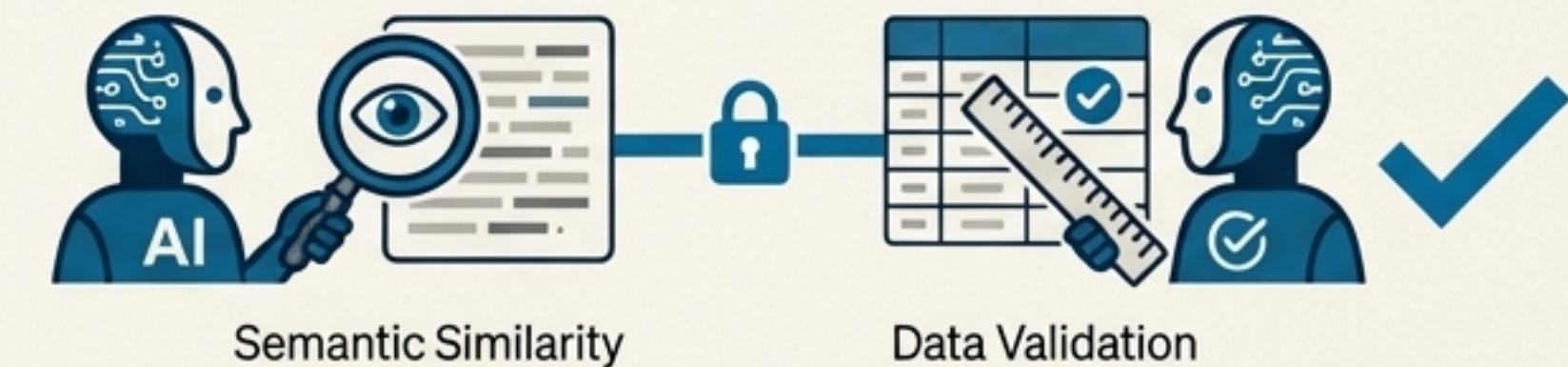


## ANTI-PATTERN 2: DON'T OVERFIT TO VOCABULARY.



**Why it Fails:** Real data is messy and inconsistent. This approach is too brittle.

### The Solution:



**"An AI Analyst is only as intelligent as the context that surrounds it. And that context isn't written in prompts, it's engineered."**

# EVEN WITH PERFECT CONTEXT, THERE IS A SEMANTIC GAP.

No matter how much explicit information you feed an AI, something essential remains out of reach.

This is the **Semantic Gap**—the hidden layer of meaning that comes from culture, experience, and intuition.

We call this **Semantic Density**.

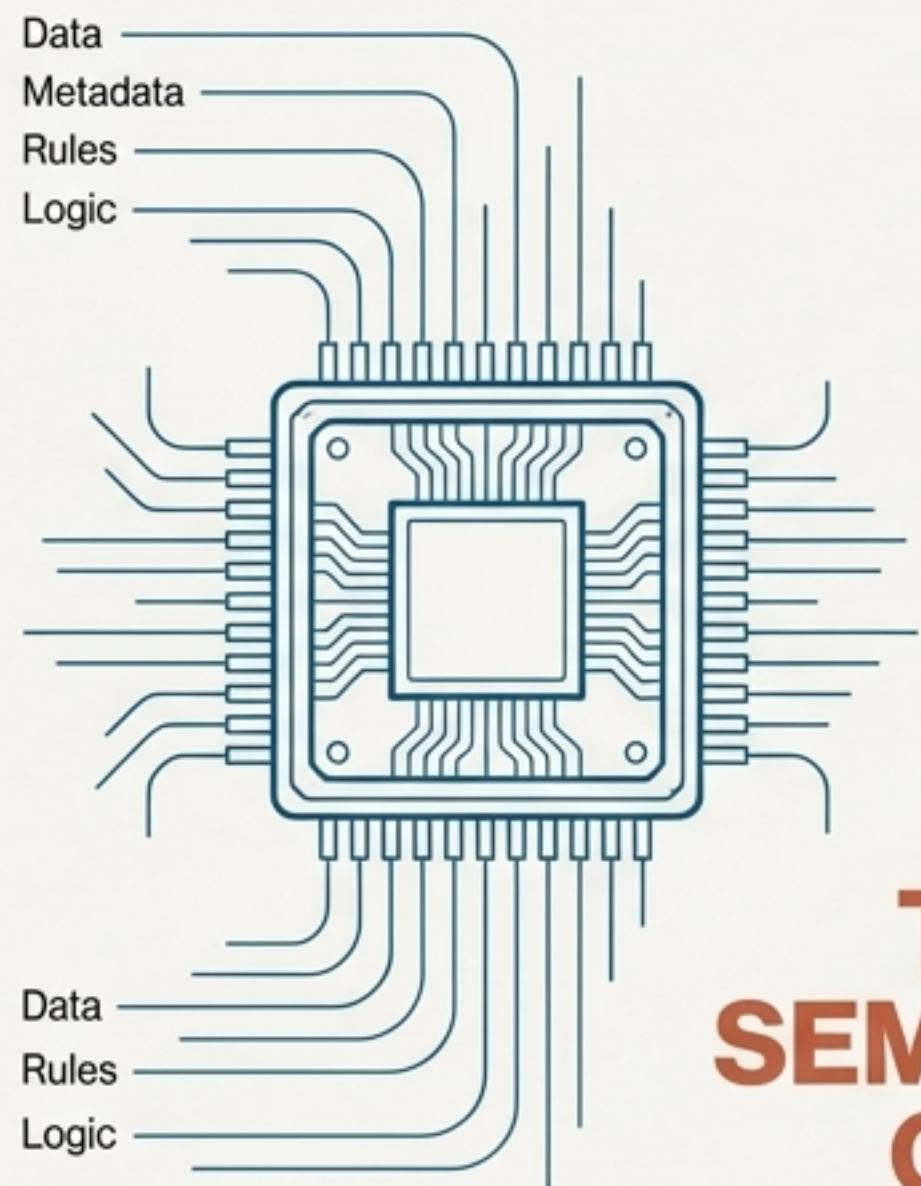
The Killer Example

**When an executive asks,  
“Is this launch ready?”**

...they aren't just asking about checklists.

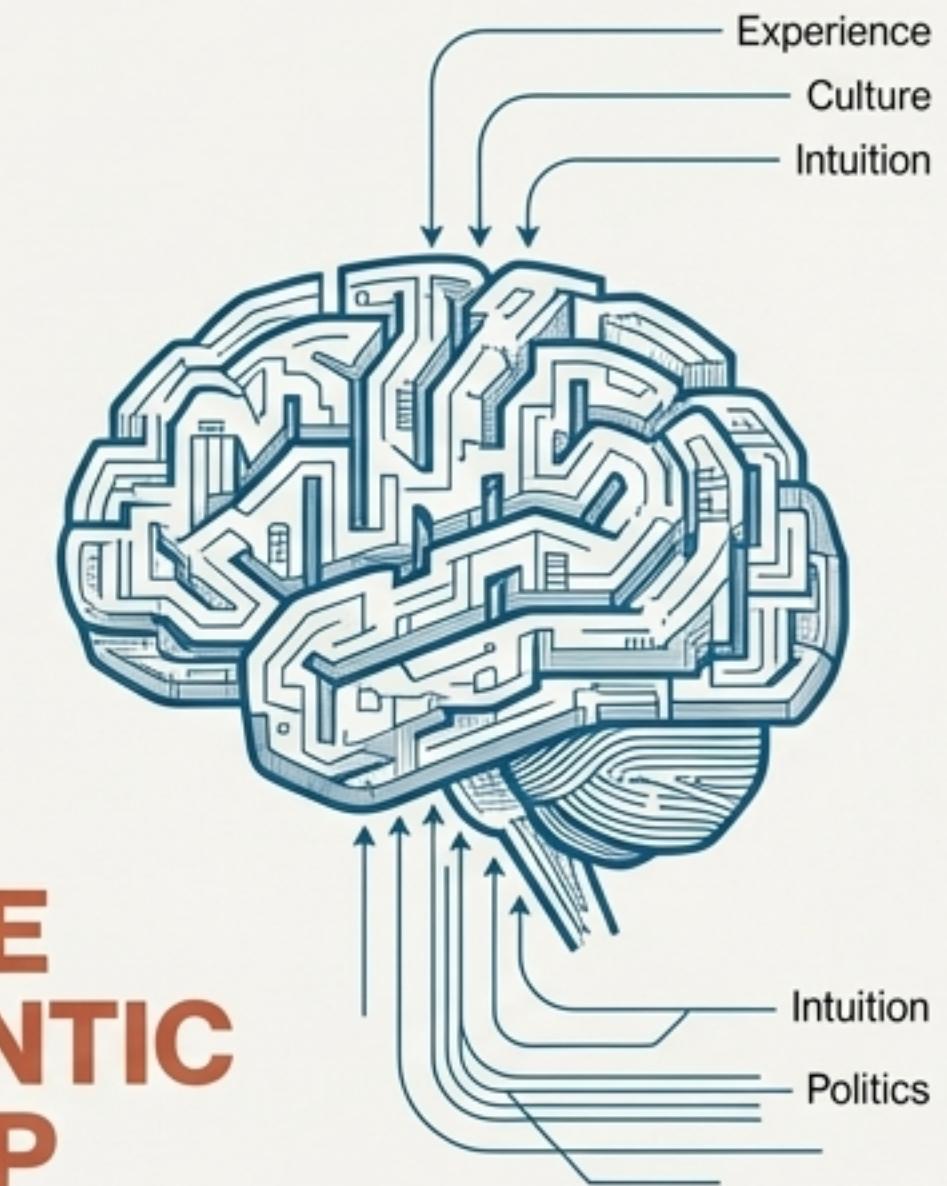
They are asking about political risks, reputational safety, and whether it *feels* right.

An AI can process every metric correctly and still miss the real question.

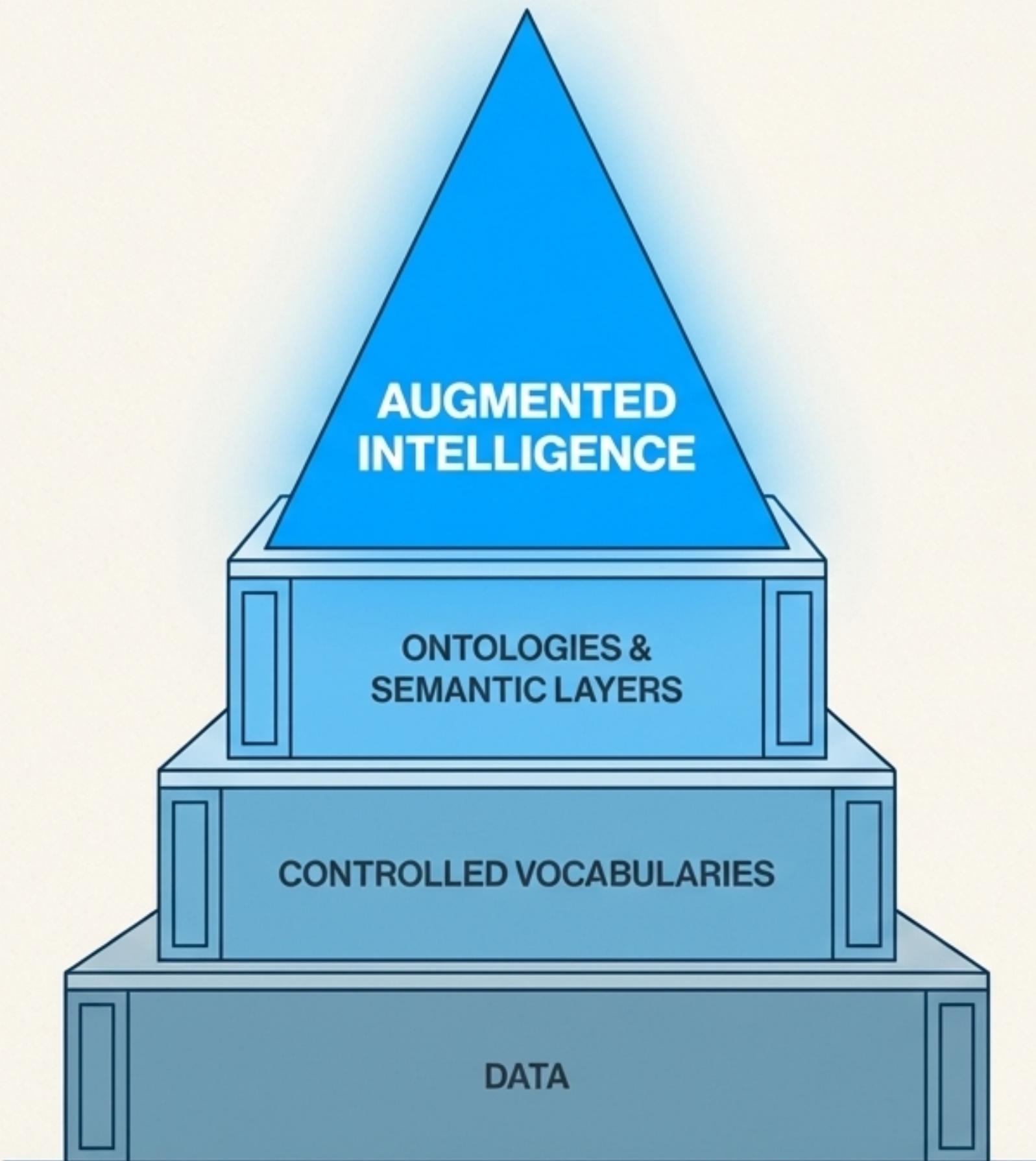


## THE SEMANTIC GAP

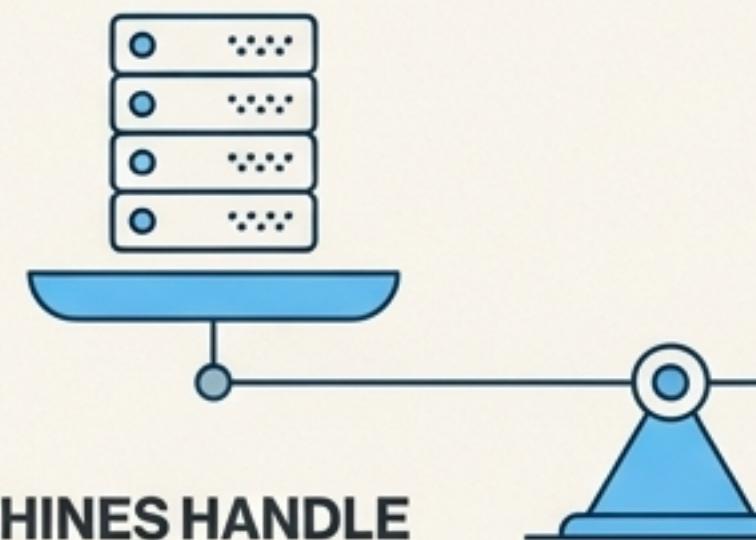
The Meaning  
You Can't Engineer



# THE GOAL IS NOT AUTOMATION, BUT AUGMENTED INTELLIGENCE.



The most successful AI projects don't try to mimic human judgment; they amplify it. The semantic gap is not a flaw to fix, but a boundary to design around. This creates a powerful partnership. The future is augmented intelligence, where AI extends our reach without replacing our judgment.



## MACHINES HANDLE

- Explicit reasoning at scale.
- Analyzing structured data, applying consistent logic, and finding patterns humans would miss.

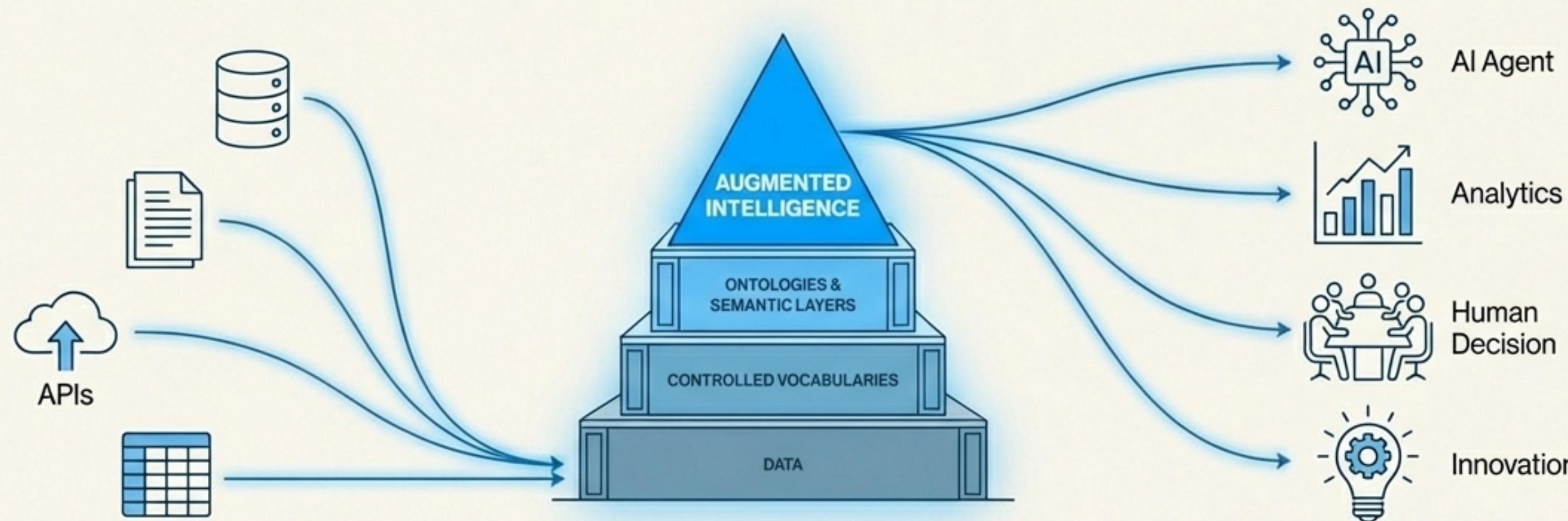
## HUMANS HANDLE

- Interpretation and judgment.
- Weighing nuance, sensing political dynamics, and applying the tacit expertise that comes from experience.

# THIS STACK IS YOUR KNOWLEDGE INFRASTRUCTURE— YOUR ORGANIZATION'S INSTITUTIONAL MEMORY.

A robust knowledge infrastructure transforms fragmented data into an interconnected network of institutional knowledge.

It's the engine that powers AI, but its value extends to human decision-making, onboarding, and innovation. It is the organization's collective brain trust, codified and made interoperable.

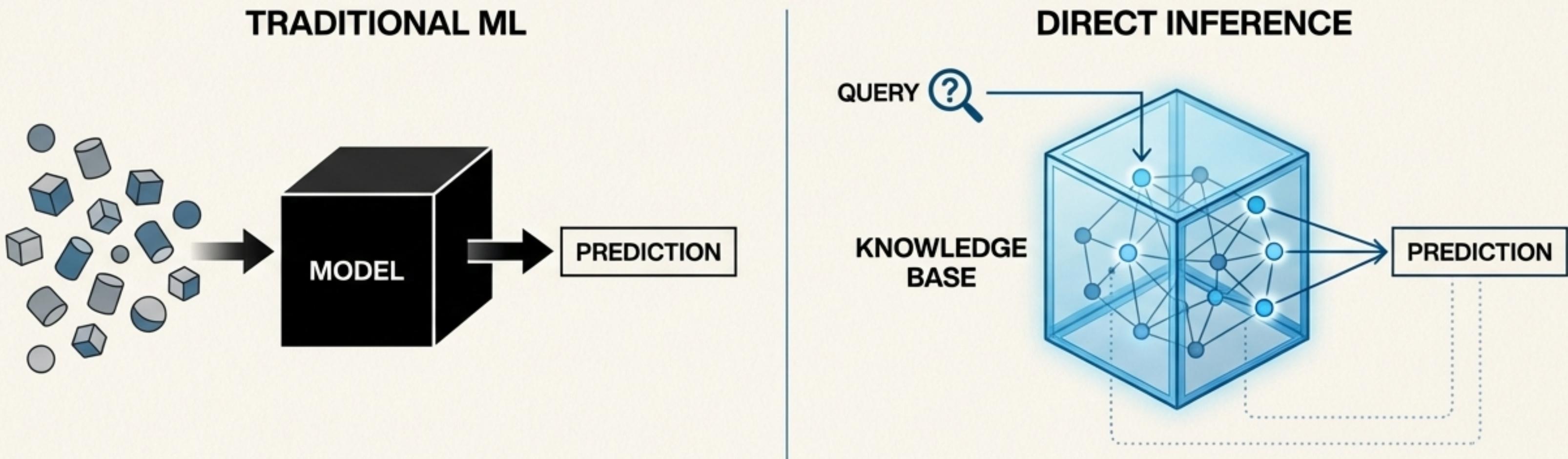


“AI-ready data is information that is easily combined to form business knowledge. These knowledge assets are used to enhance enterprise AI models, improving AI inference.”

— Ernst & Young

# A TRUE KNOWLEDGE INFRASTRUCTURE UNLOCKS NEW PARADIGMS: LEARNING AS MEASUREMENT.

With a solid foundation of meaning, we can move beyond traditional models that are often opaque and biased. New, model-free frameworks operate directly on data, using information theory to measure uncertainty and relevance. Instead of training a black box, we can perform inference directly by finding the most relevant data.



**Inference via Surprisal as Distance.** Surprisal quantifies information gained when observing a data point. We can directly query our knowledge infrastructure to find data with the lowest 'surprisal' relative to our question. This approach is traceable, interpretable, and allows for tasks like causal discovery by analyzing asymmetries in uncertainty reduction.

# THE MOST VALUABLE SKILL IS ENGINEERING SHARED UNDERSTANDING.

The new paradigm is clear. In the past, data teams focused on producing assets like dashboards and pipelines. Today, they must become engineers of context and meaning. The ultimate competitive advantage will not come from having the largest models, but from the semantic discipline to ensure AI understands the meaning *behind* the patterns in the data.

The New Mandate



**AI ACCELERATES REASONING.**



**HUMANS REFINE MEANING.**

“The future will not be built by teams chasing human-like machines, but by those who design for augmented intelligence—combining machine precision with human intuition.”