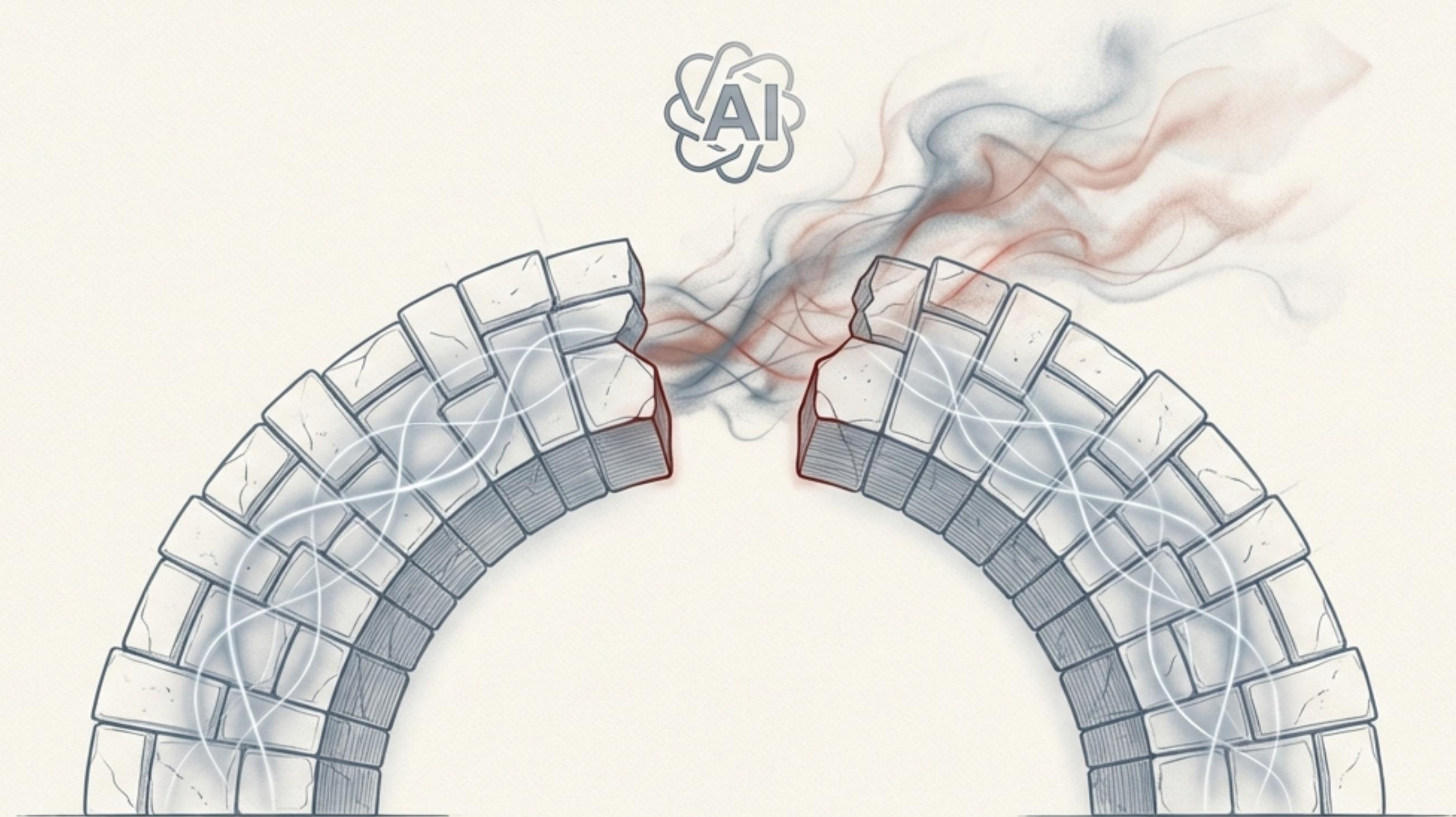


Your Semantic Layer is Necessary, But Not Sufficient for AI.

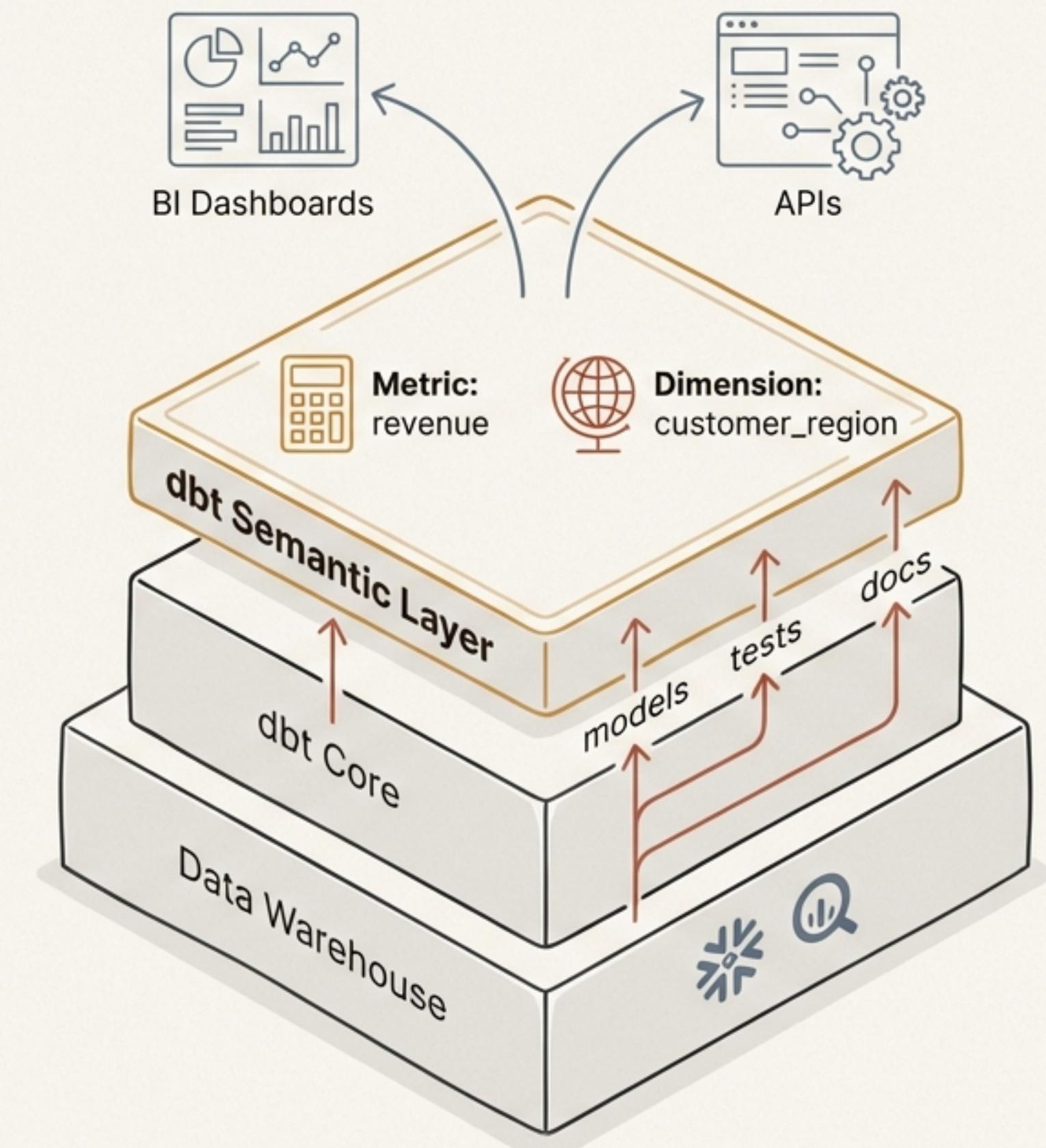
Why AI agents fail without an enriched context layer, and how to build the missing keystone for your data strategy



You've Built a Powerful Foundation

Data teams have successfully moved beyond raw data, using tools like **dbt** to **define a semantic layer**.

This provides a single source of truth for key business metrics, dimensions, and entities. It's the critical first step towards data consistency and is the bedrock of modern analytics.



Yet, AI Initiatives Are Failing in the “AI Value Chasm”.

95%

of AI pilots fail in production

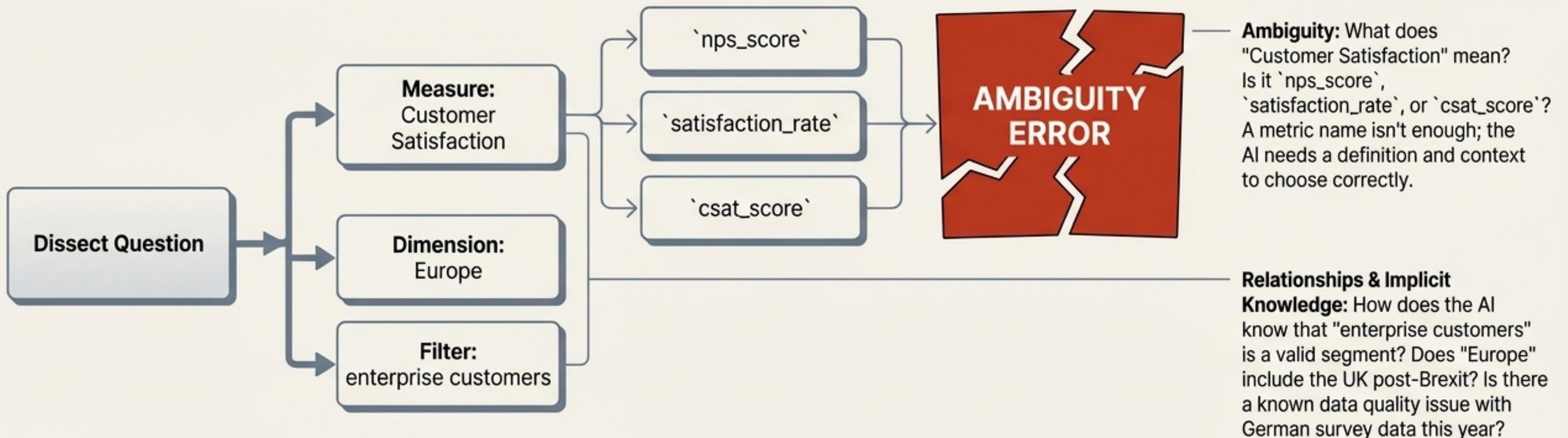
Source: MIT Sloan



Despite a well-defined semantic layer, AI agents still struggle to answer complex business questions. They can talk to data, but they can't be understood. The reason is the **Context Gap**: the space between what the AI knows (your metrics) and the unwritten rules, business logic, and judgment calls that live in people's heads. AI lacks the **semantic density**—the cultural shorthand and intuitive sense of “what's really going on.”

The Anatomy of a Question AI Can't Answer

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

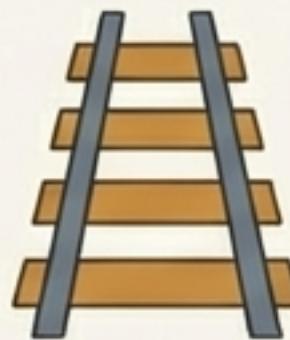


The Solution: Engineer an Enriched Context Layer.

We must move beyond data pipelines and start building a **Context Supply Chain**. This requires **Context Engineering**: the discipline of intentionally creating, governing, and scaling a machine-readable layer of business understanding. This enriched layer acts as a "semantic scaffold" that allows AI to reason accurately, grounded in your organization's specific meaning.



The Building Blocks of Machine-Readable Meaning.



Controlled Vocabularies

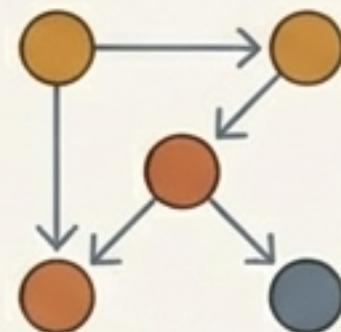
Provide 'semantic rails' to escape the 'probabilistic fog'.

They create unambiguous definitions to establish conceptual boundaries.

Example

Cranes (Birds) |

Cranes (Construction equipment)



Ontologies & Knowledge Graphs

Map relationships between high-value entities (customers, products, accounts).

Codify the business 'playbook' so agents can act consistently.

Example

Household → Person → Research
Journey → Purchase

to solve the 'car that got sold twice' problem



Rich Metadata & Taxonomies

Connect business terms in glossaries to specific data assets.

Act as the connective tissue, telling an AI that 'churn' means 'inactive customers' and that this definition differs between Finance and Marketing.

Example

Finance definition: 'churn' = accounts with >90 days overdue payment

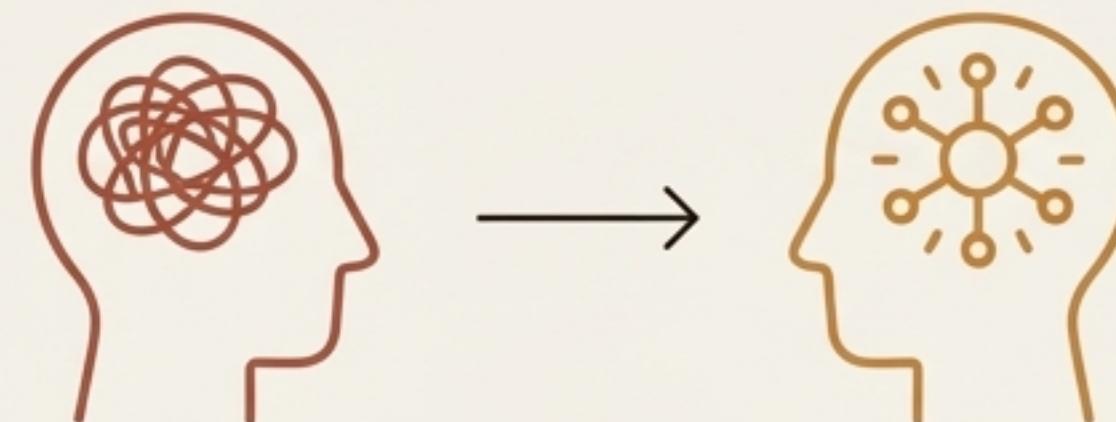
Marketing definition: 'churn' = customers with no product usage in last 30 days.

The Payoff: From Answering Queries to Accelerating Decisions

Drastically Improved Accuracy

5X

increase in response accuracy by engineering context into AI systems.



What happened?

**Why it happened,
and what to do next.**

*Source: Collaboration with Workday.

Higher Efficiency and Lower Cost

40%

improvement in response correctness with ontology-grounded RAG, improving cost efficiency up to 50%.

*Source: Microsoft Research, 2025.

Trust and Explainability

Move beyond the “black box.” AI outputs become traceable to governed, human-validated definitions, building stakeholder trust.

A New Discipline: The Context Supply Chain

Just as data pipelines ensure data quality, a context supply chain ensures **semantic quality**. Context is not a static document; it's a living system that must be co-created, tested, and continuously refined through a human-AI feedback loop.

Validate & Scale

Re-test after enrichment and propagate verified context across the organization.

Enrich & Refine

Use insights from observation to add new definitions, refine relationships, and clarify metric logic.

Bootstrap

Connect existing metadata (dbt descriptions, glossaries) to form a base layer.

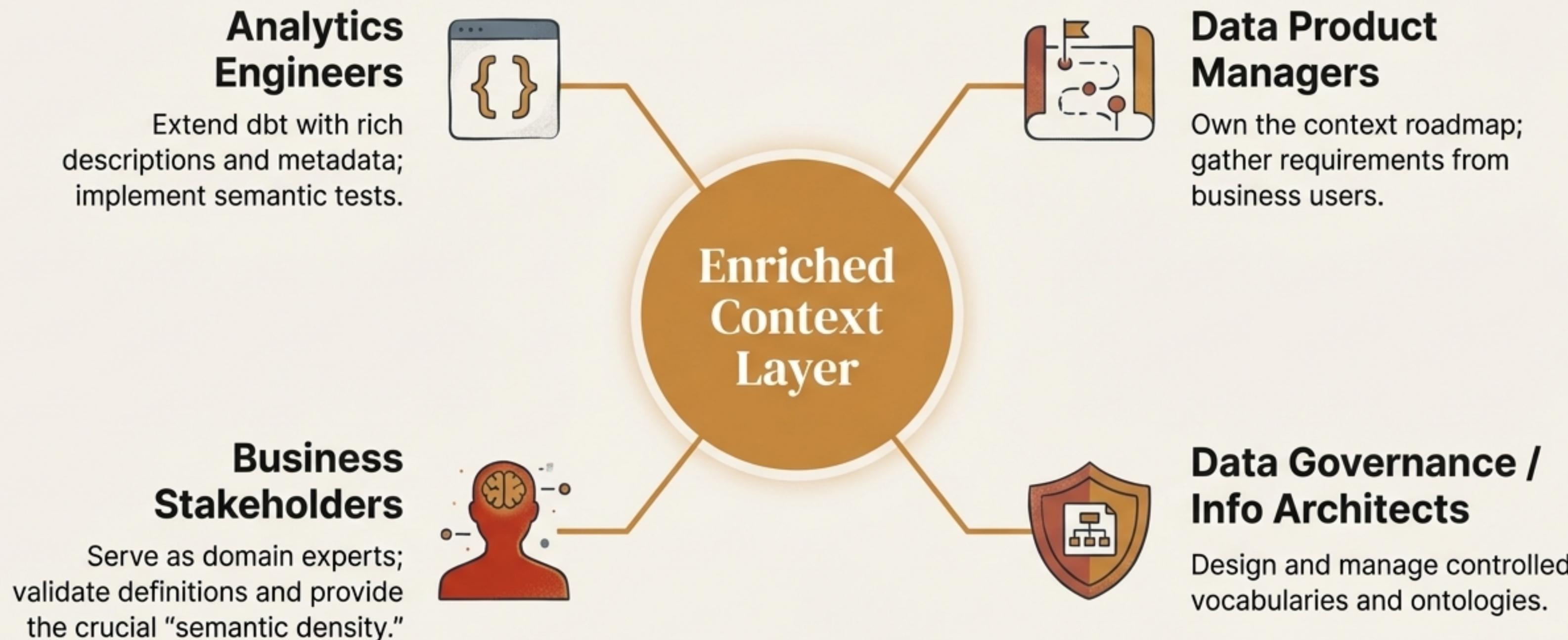
Test & Observe

Evaluate the AI's ability to answer key business questions. Monitor where it succeeds and fails.



The Team that Engineers Shared Understanding

Context engineering is a team sport that bridges the gap between business and technology. It requires a shift from producing data assets to cultivating a shared understanding of the business.



The Future of Analytics Isn't Bigger Models, It's Better Meaning.

Data alone, even when organized in a semantic layer, is raw fuel. A robust knowledge infrastructure is the engine that transforms data fragments into the contextualized, meaningful assets that empower AI.

*"Organizations that will thrive in the AI era... are the ones that have invested in semantic discipline, to ensure their AI systems understand the patterns in their data **and** the meaning behind those patterns."*

– Jessica Talisman, *From Metadata to Meaning*

The most valuable skill is no longer just writing SQL, but engineering context. This is the foundation for trustworthy, scalable, and truly intelligent AI.

