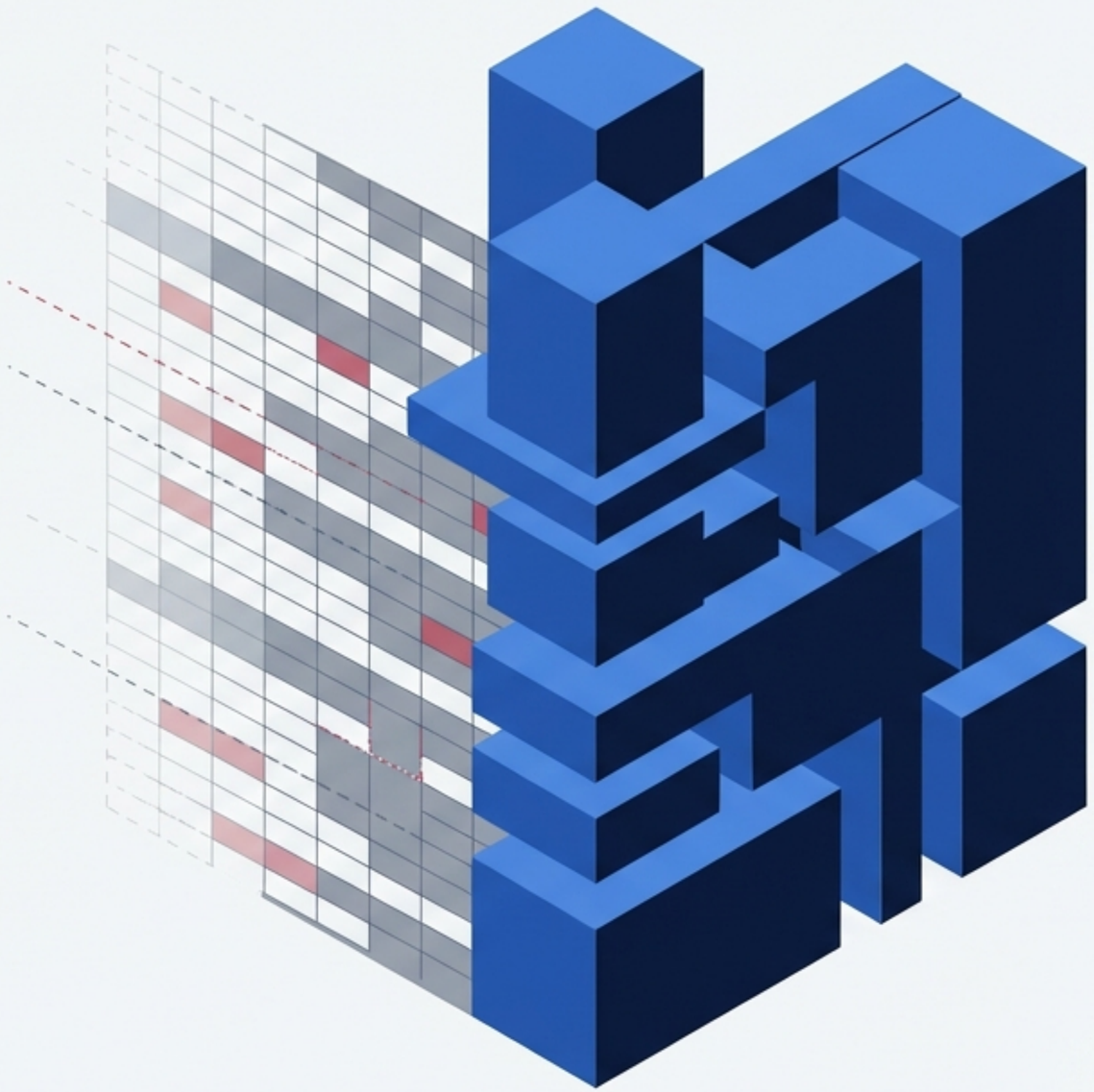
Intent-Driven Financial Architecture (IDFA)

Building deterministic, audit-proof financial models for human auditors and AI agents.



Forty Years of Spreadsheets Built a Structural Flaw

The Coordinate Trap

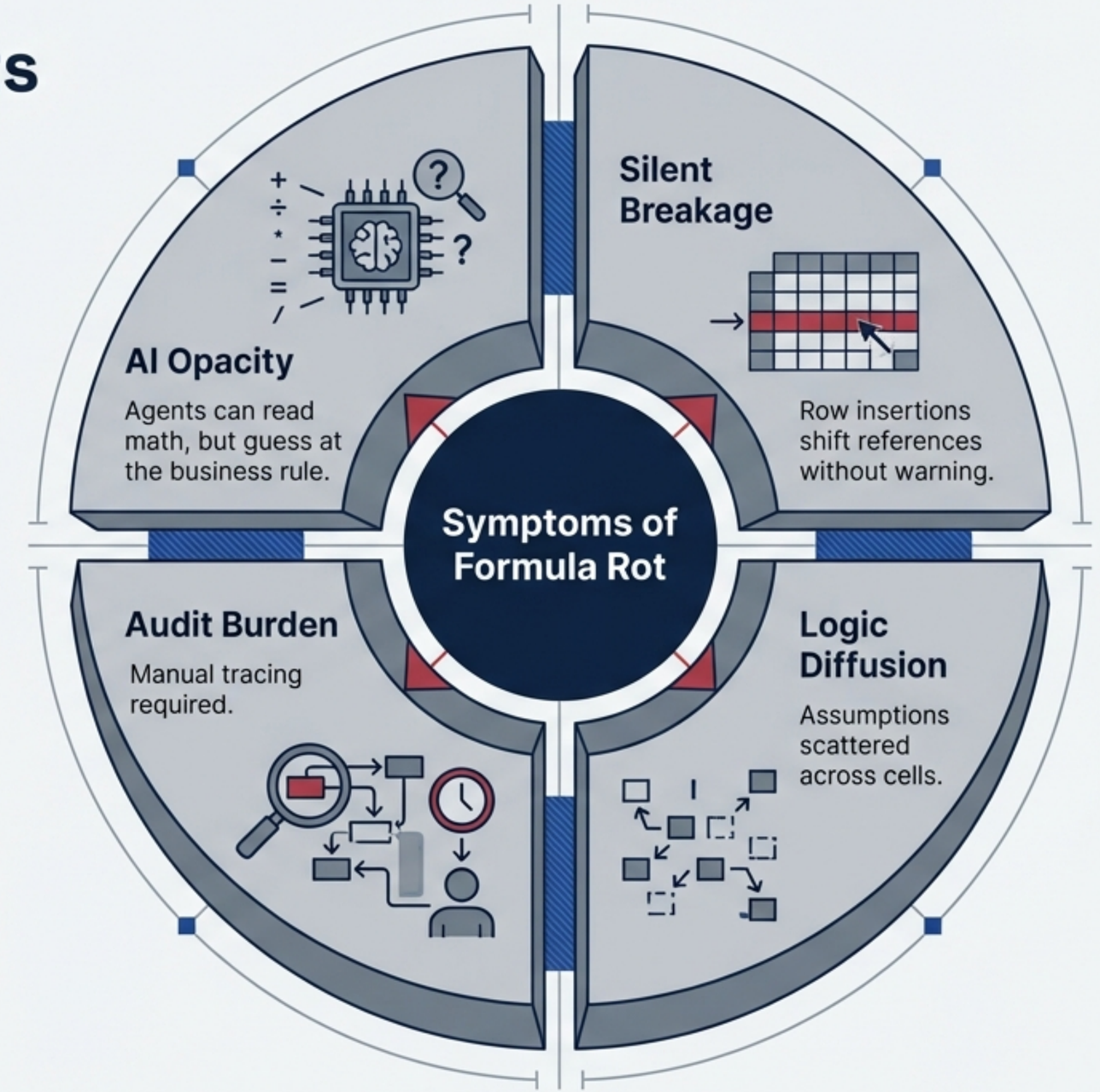
Business logic encoded as grid addresses, leaving intent trapped in the analyst's head.

Formula Rot

The progressive degradation of a model's integrity as it ages and changes hands.

Visual Teardown

```
=B14-(C14*$F$8+D$3)
```



Defining Logic by Name, Not by Location

The Agent Capability Gap = The Business Capability Gap

Coordinate models force agents into inference mode. IDFA models put agents into analysis mode.

Coordinate-First

```
=B14-(C14*$F$8)
```

Result: AI guesses and hedges.

Appears to represent a revenue figure minus a product. This may represent a gross profit calculation, though I would need to verify headers to confirm.

Logic-First

```
=Revenue_Y2 - (Revenue_Y2 * COGS_Pct_Y2)
```

Result: AI knows and analyzes.

Gross Profit equals Revenue after subtracting Cost of Goods Sold. A 1-percentage-point reduction in COGS Percentage would increase Gross Profit by $110,000.

The Three Isolated Layers of a Modern Financial Model

The Golden Rule: The Isolation Rule

Changing a Layer 1 input can never break a **Layer 2 formula** because logic reads names, not positions.

Guardrail 1

Guardrail 1: Zero Coordinate References

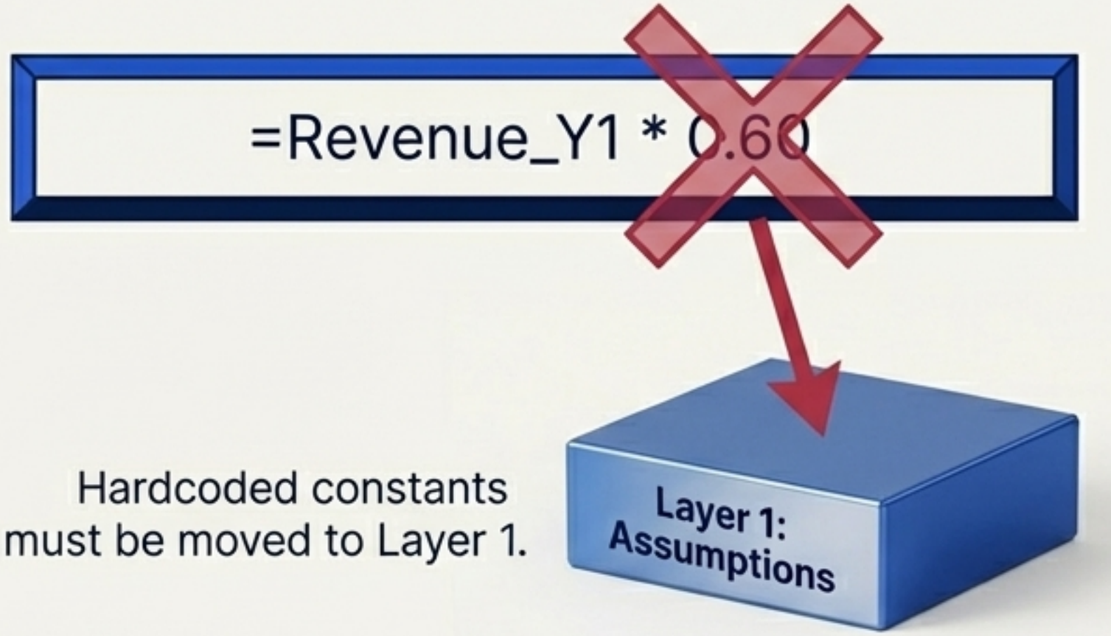
Every formula must read as a plain-English business rule.

IDFA Naming conventions

Inp_Rev_Y1	User-modifiable input
Revenue_Y2	Derived annual calculation
Gross_Margin_Pct	Ratio or percentage

The Compliance Test:

If you must click a referenced cell to understand what a formula calculates, the formula fails.



Hardcoded constants must be moved to Layer 1.

Guardrail 2: Mathematical Verification Before Commitment

Readable formulas are not always correct formulas. LaTeX mathematical typesetting makes structural errors instantly visible for WACC, NPV, Terminal Value, and IRR.

Excel String (Hides Errors)

```
=(Equity_Value / (Equity_Value + Debt_Value)) * Cost_of_Equity +
 (Debt_Value / (Equity_Value + Debt_Value)) * Cost_of_Debt
```

Missing (1 - Tax_Rate) shield!

LaTeX Typesetting (Reveals Structure)

$$\text{WACC} = \frac{\text{Equity Value}}{\text{Equity Value} + \text{Debt Value}} \times \text{Cost of Equity} + \frac{\text{Debt Value}}{\text{Equity Value} + \text{Debt Value}} \times \text{Cost of Debt}$$

A missing tax shield is invisible in Excel strings. In LaTeX, the omission is glaring. On a $100M deal, this single catch saves millions in valuation error.

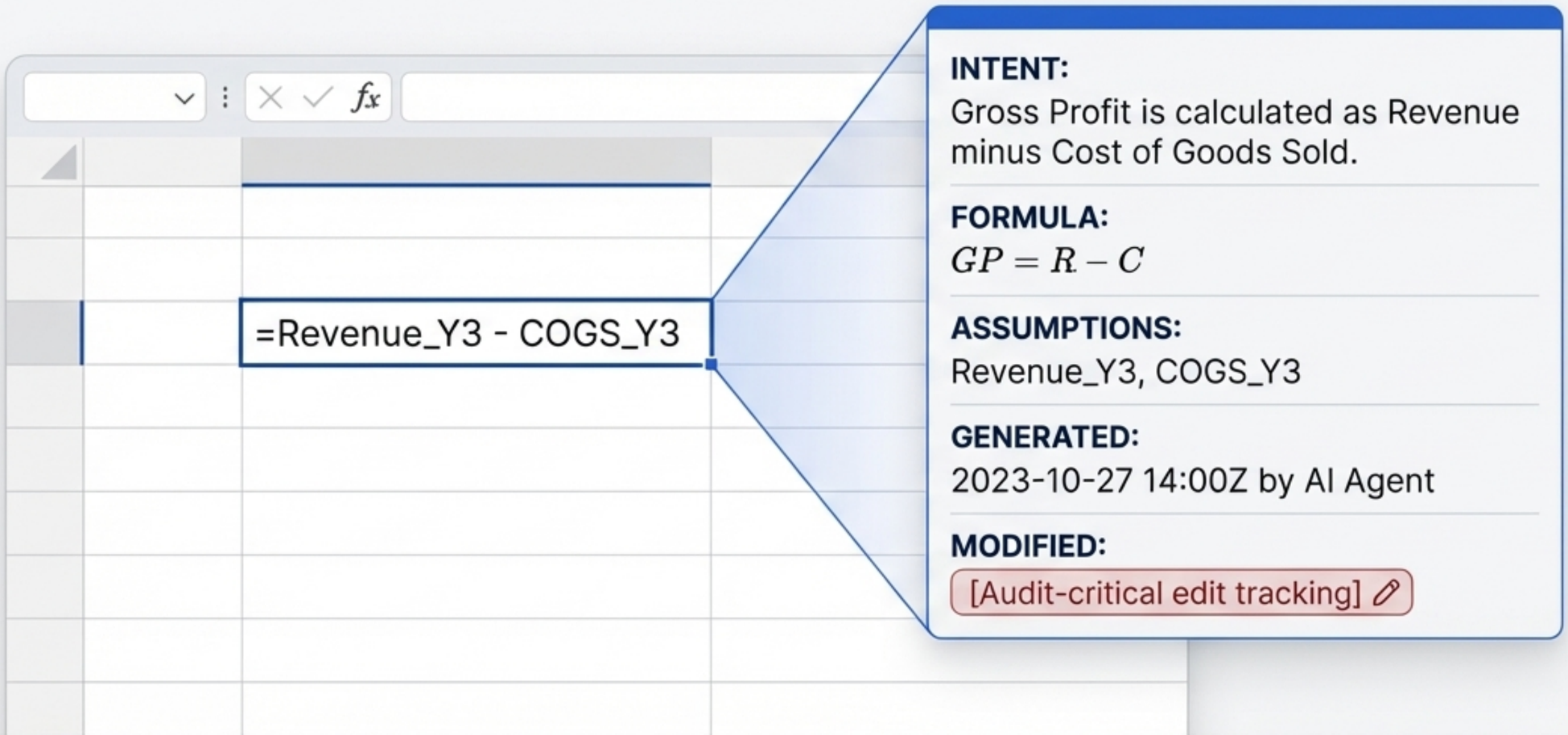
Guardrail 3

Guardrail 3: Institutional Memory Attached to Every Formula

Brief intro omitted to maintain scannability.

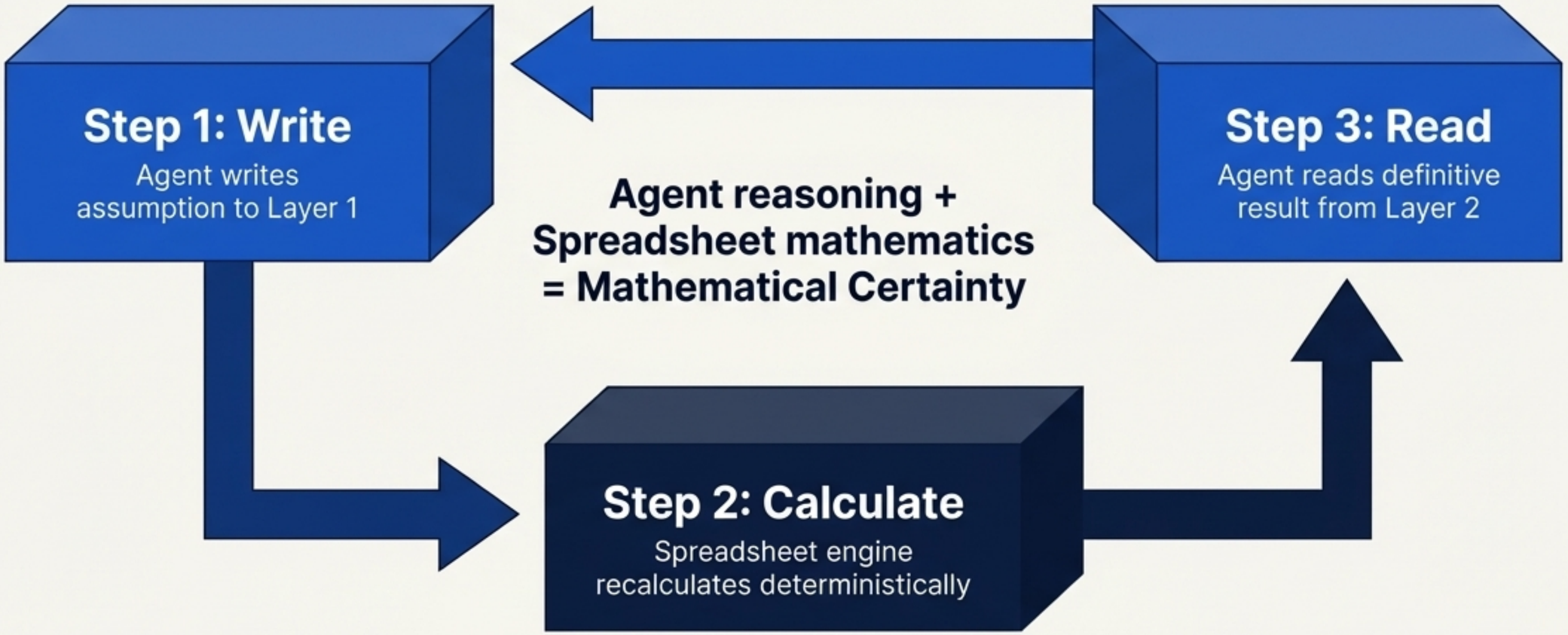
The Golden Rule: Divergence is the Audit Signal

If a formula is modified but the note isn't, the visible mismatch triggers an auditor review.



Guardrail 4

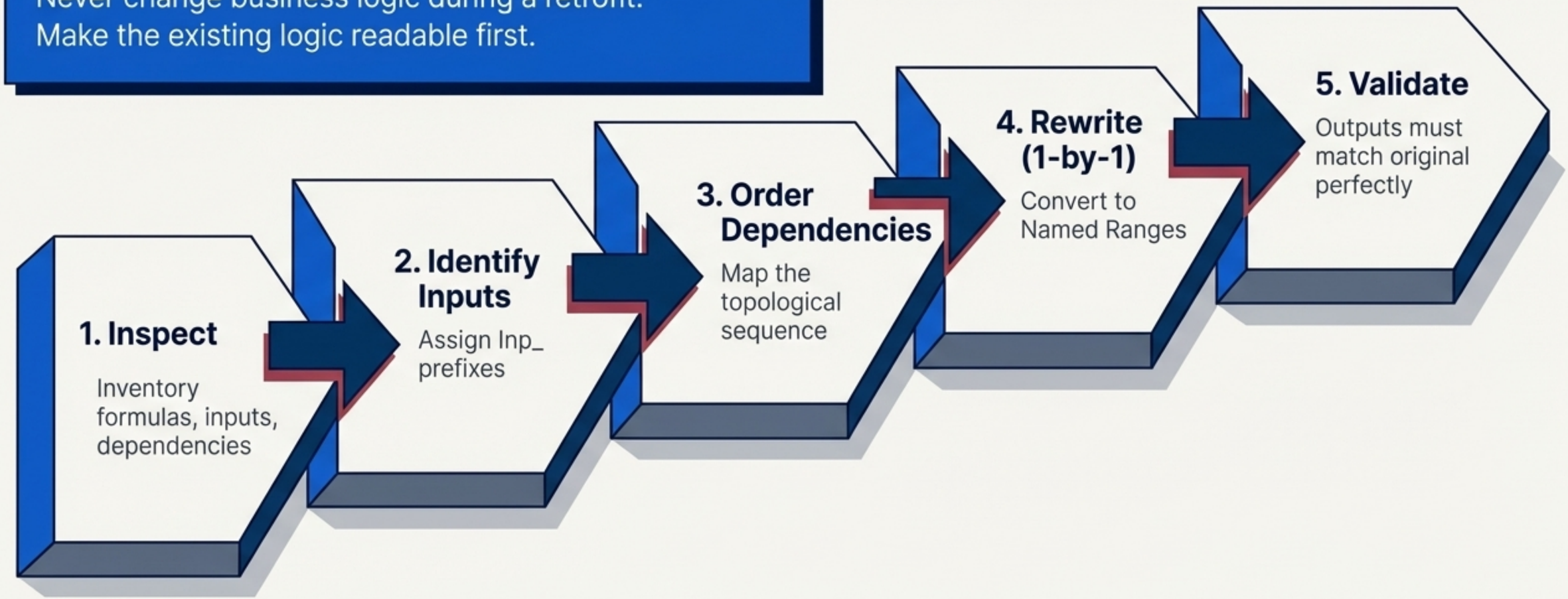
Guardrail 4: Agents Must Never Calculate Internally



Internal agent estimates are opinions. Spreadsheet engine calculations are audit-valid.

Rescuing Legacy Models Without Changing Business Logic

The Golden Rule: Transparency, Not Improvement.
Never change business logic during a retrofit.
Make the existing logic readable first.



Enforcing the Standard Across All AI Agents

The IDFA Plugin translates the methodology into an agentskills.io standard file (SKILL.md). It automatically enforces Layer Isolation, Guardrails, and Naming Conventions before the agent touches the model.

Agent Decision Table

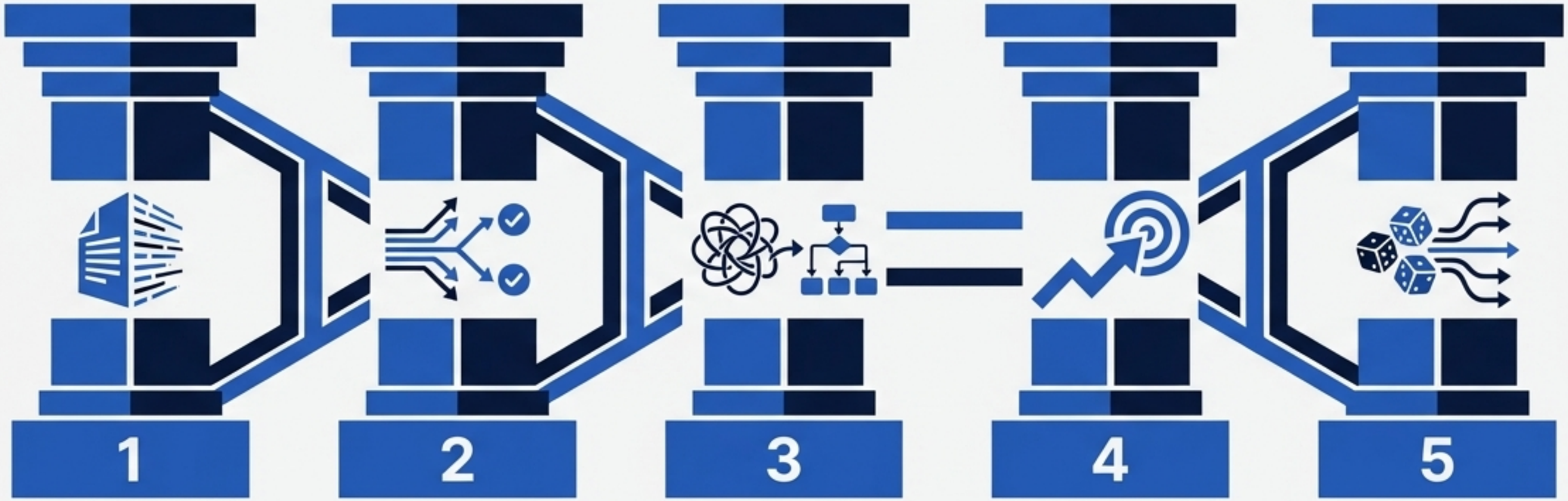
If User asks for What-If:
-> Execute Write-Calculate-Read
-> DO NOT calculate internally

Enterprise Controls for

The plugin handles technical enforcement.
Enterprise Governance handles accountability.

Five Capabilities of a Validated IDFA Deployment

Architecture enables capability. When every formula reads as a business rule, agents shift from describing grids to analyzing businesses.



Intent Synthesis
Auto-structuring models from plain English.

Deterministic What-If
Delegated calculation scenarios.

Logic De-compilation
Reconstructing business rules from unfamiliar models.

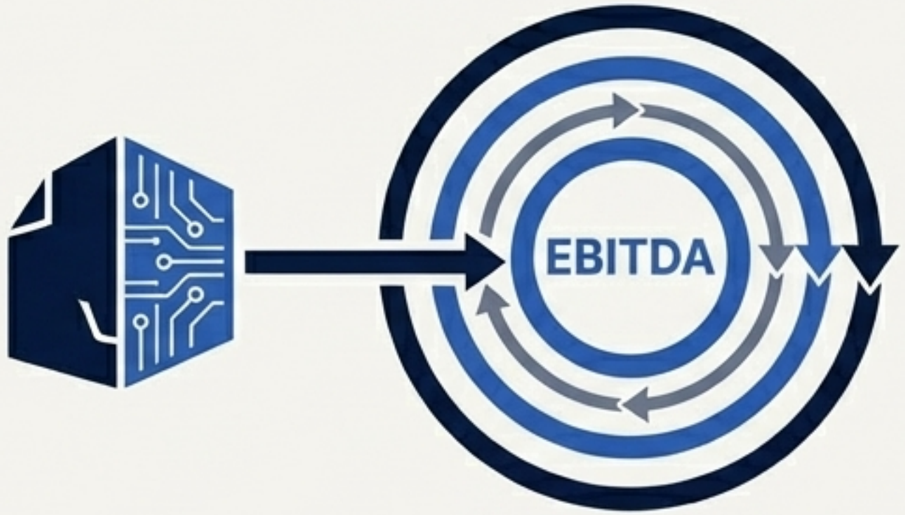
Strategic Goal-Seeking
Iterative target acquisition.

Stochastic Simulation
Monte Carlo through the deterministic engine.

Delegating Strategic Iteration and Simulation to the Engine

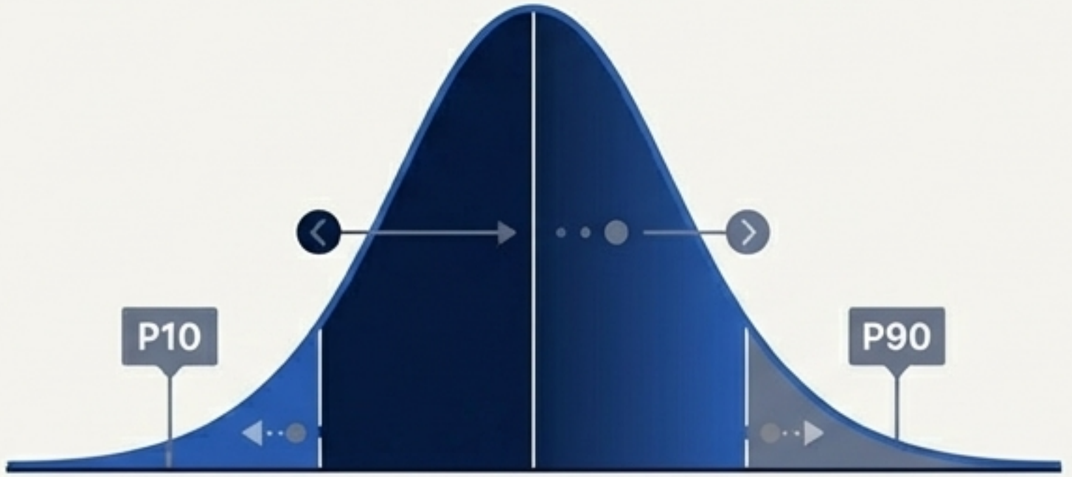
Goal-Seeking

The agent writes, reads, and adjusts inputs iteratively to hit exact target outputs.



Monte Carlo Simulation

Orchestrating 100+ scenarios through the actual Excel model, honoring every guardrail.



Every data point is generated by the deterministic engine.

The Measurable ROI of Intent-Driven Models

AUDIT DURATION

Compresses from weeks to days. Verification is done by reading, not tracing.

ANALYST ONBOARDING

Drops to minutes. Models are entirely self-documenting.

REGULATORY CONFIDENCE

Spikes through provable, 100% LaTeX-verified complex formulas.

INSTITUTIONAL MEMORY

Compounds permanently via embedded Intent Notes.


Stop Building Grids.
Start Building Models.
Coordinate-first design is a 40-year-old compromise.
Intent-Driven Financial Architecture (IDFA) is the
definitive standard for human clarity and AI operability.
NotebookLM