

A PRACTICAL ARCHITECTURE FOR COMPLEX B2B COMMERCE

Beyond the Search Bar

How Guided Decision Architecture Unlocks Digital Commerce for Complex & Technical Products.

UNDERSTAND → STRUCTURE → DECIDE → CALCULATE → TRANSACTION

The Enterprise Decision Pipeline



A field guide to trustworthy enterprise decisions

Enterprise AI is moving from fluent answers to accountable outcomes. This guide sets out a layered architecture for product selection, guided selling, technical recommendations, pricing, and transaction execution.

AUDIENCE

Leaders designing AI-enabled commerce, manufacturing, and technical product-selection systems.

CORE IDEA

Give each responsibility to the system best qualified to perform it.

Important: This publication presents an architectural viewpoint. Product names, thresholds, quantities, and commercial details used in examples are illustrative and should not be treated as application, engineering, safety, or purchasing advice.

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The problem is not the answer. It is the decision.

Understanding is probabilistic.
Decisions are deterministic.
Transactions are transactional.

Enterprise AI discussions are dominated by models, prompts, agents and Retrieval-Augmented Generation (RAG). These are important building blocks, but they are not an architecture.

For complex B2B commerce, industrial manufacturing and technical product selection, the real challenge is not generating fluent answers---it is making correct, explainable and commercially safe decisions.

This paper proposes a layered decision architecture in which Large Language Models (LLMs), Retrieval-Augmented Generation (RAG), ontologies, deterministic inference engines and transactional commerce systems each perform a narrowly defined responsibility.

The central thesis is simple:

**Understanding is probabilistic. Decisions are deterministic.
Transactions are transactional.**

01

Understand

Use language models to interpret intent, entities, context, and candidate meanings.

02

Structure

Use an ontology to connect the customer's problem to the systems and concepts that matter.

03

Decide

Use evidence, governed rules, and deterministic calculations to produce an explainable recommendation.

Contents

The guide follows the decision from the customer's words to a governed, commercially safe transaction.

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Introduction

For almost thirty years digital commerce has optimized discovery.

Search became faster. Filtering became richer. Recommendations became smarter.

Yet many industrial websites still fail because customers are not trying to discover products--- they are trying to solve problems.

A contractor rarely searches for:

EPX-2047 Heavy Duty Primer

Instead they ask:

"My warehouse floor is dusting."

or

"Water enters the basement after heavy rain."

The customer's language describes symptoms.

The manufacturer's catalogue describes products.

Bridging that gap is not a search problem.

It is a decision problem.

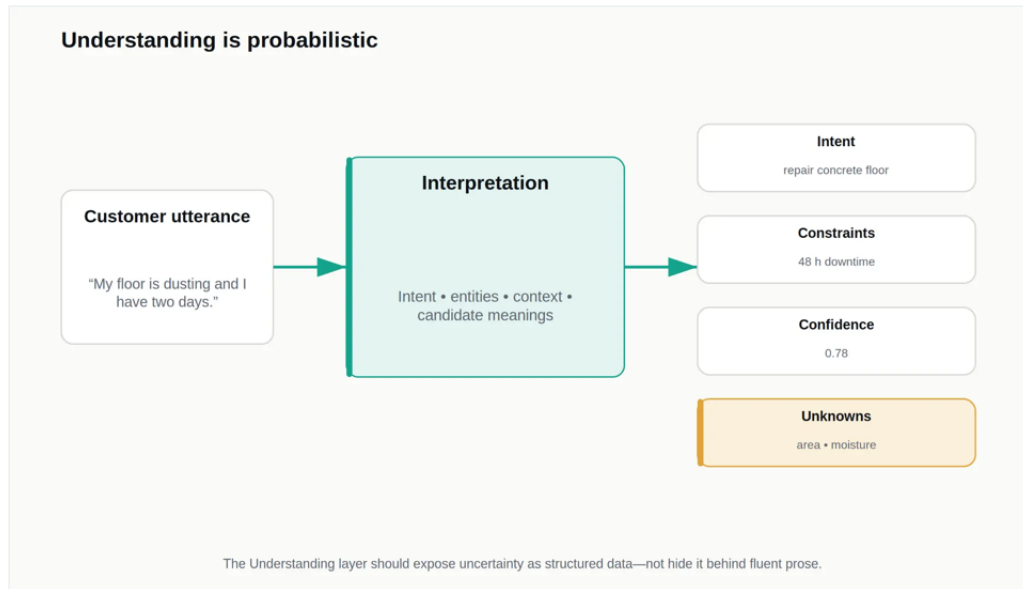


Figure 05 Understanding is probabilistic.

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Why Traditional Commerce Breaks Down

Conventional storefronts assume:

- customers know product names
- product categories are intuitive
- filtering narrows choices
- the user can compare specifications

These assumptions work well for books, clothing and electronics.

They fail for:

- coatings
- adhesives
- sealants
- industrial chemicals
- engineered systems
- filtration
- medical devices
- automation equipment

Customers buy outcomes, not SKUs.

The Four Generations of Product Selection

Generation 1 --- Catalogue Commerce

Product hierarchy → Search → Cart

Strength: Simple.

Weakness: Requires expert customers.

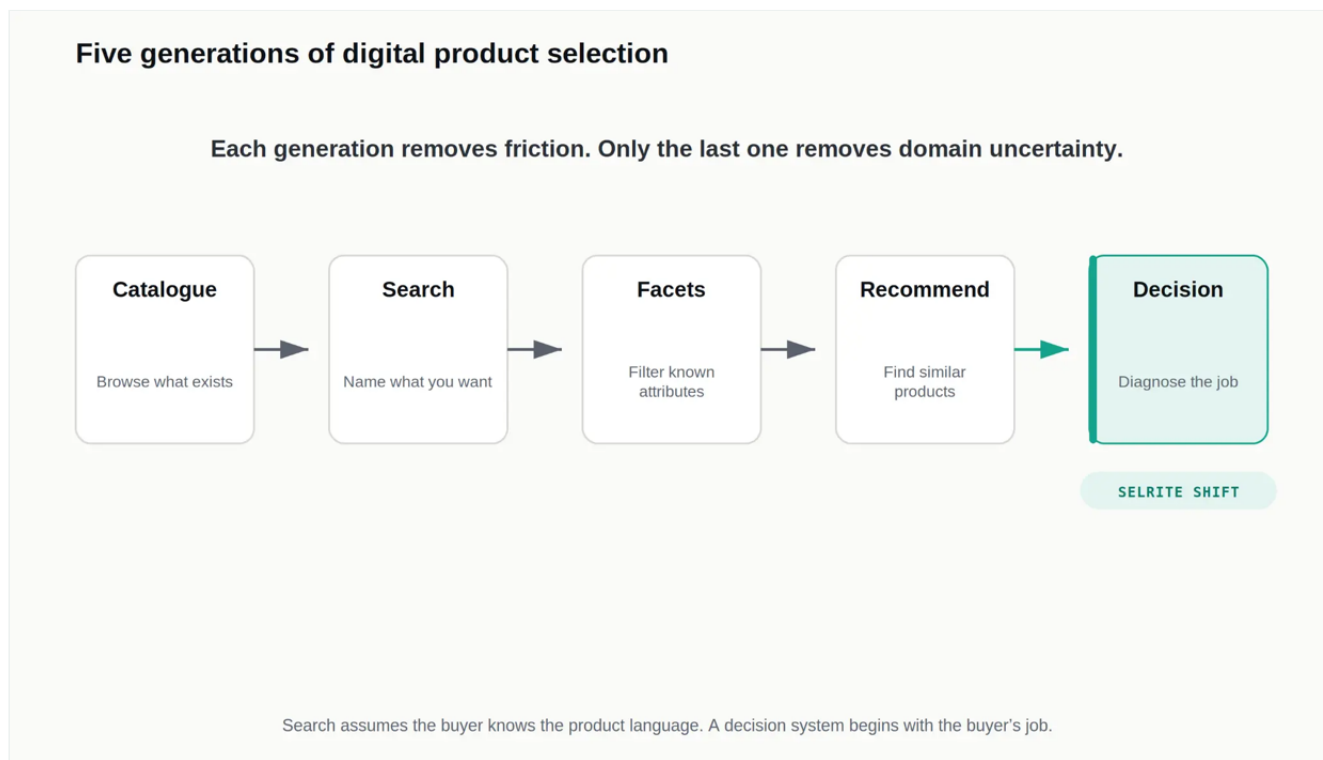


Figure 01 Five generations of digital product selection.

Generation 2 --- AI Chatbot

Customer question → LLM → Answer

Strength: Natural conversation.

Weakness: Hallucinations, weak explainability and no deterministic control.

Generation 3 --- RAG Assistant

Question → Retrieval → LLM → Answer

Strength: Grounded in enterprise knowledge.

Weakness: Retrieval is not decision making.

The model may retrieve five technically correct documents yet still recommend the wrong system.

Generation 4 --- Layered Decision Architecture

Customer ↓ Intent ↓ Ontology ↓ Knowledge Retrieval ↓ Inference ↓ Calculation ↓ Pricing ↓ Commerce

This paper argues that Generation 4 represents the long-term architecture for enterprise AI.

Separate Responsibilities

Every layer should answer one question.

LAYER	PRIMARY QUESTION
LLM	What does the customer mean?
Ontology	What concepts exist?
Retrieval	What knowledge is relevant?
Inference	What is valid?
Calculation	What quantity is required?
Pricing	What is the commercial truth?
Commerce	Can we fulfil and transact?

This separation dramatically reduces risk.

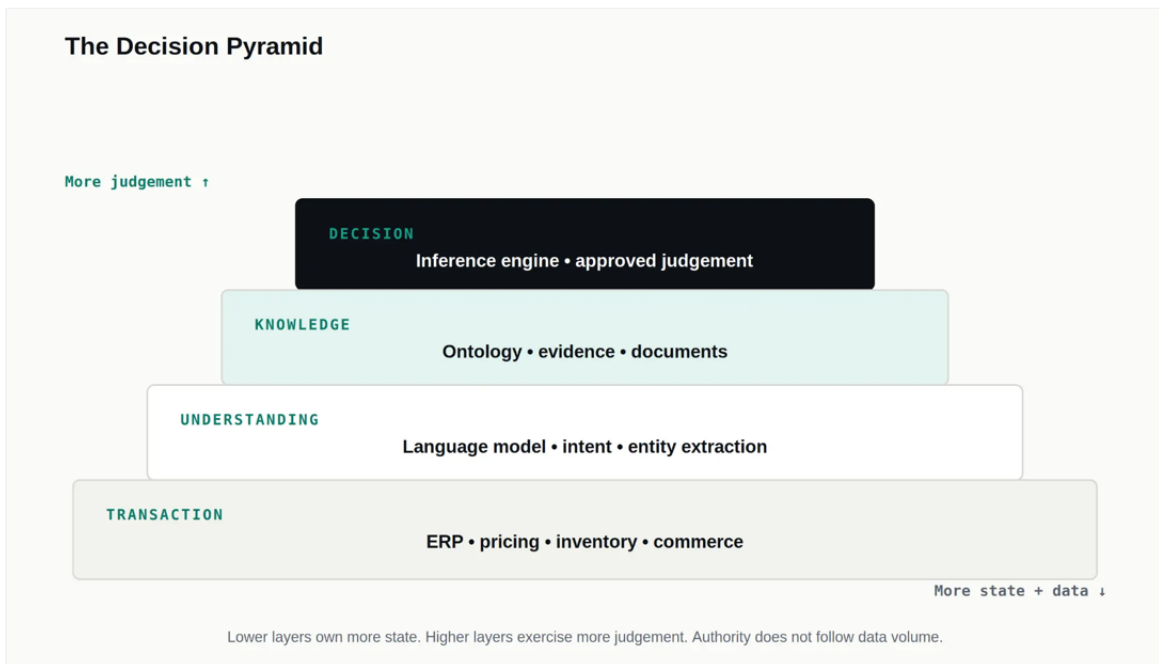


Figure 04 The decision pyramid.

The Role of the Ontology

An ontology is often misunderstood as a taxonomy.

It is far richer.

It defines concepts and relationships.

Example:

Problem → Water Ingress

Water Ingress → occurs in → Basement Wall

Basement Wall → constructed from → Concrete

Concrete → compatible with → Primer Family A

Primer Family A → required before → Membrane Family B

The ontology gives meaning to language.

Without it, AI performs sophisticated keyword matching.

With it, AI reasons about concepts.

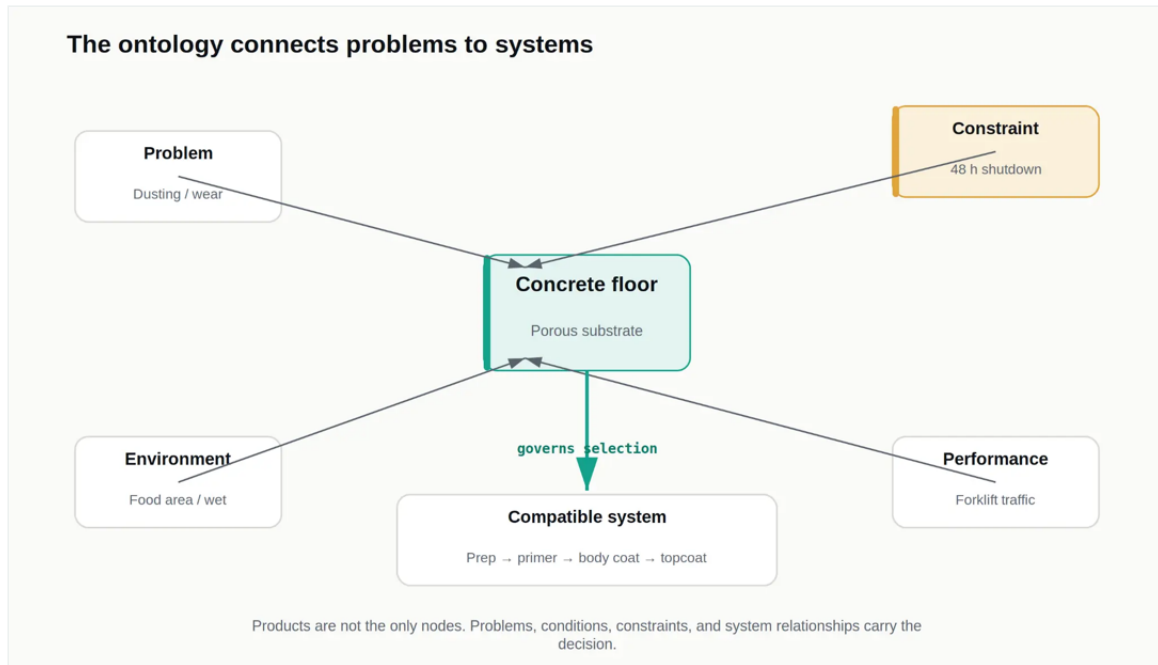


Figure 06 The ontology connects problems to systems.

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Retrieval Is Evidence, Not Truth

RAG has become almost synonymous with enterprise AI.

Yet retrieval answers only one question:

Which information might be useful?

It does not answer:

- Which product is correct?
- Which products are excluded?
- Is the recommendation safe?
- Is the information superseded?
- Which regional formulation applies?

Evidence is not judgement.

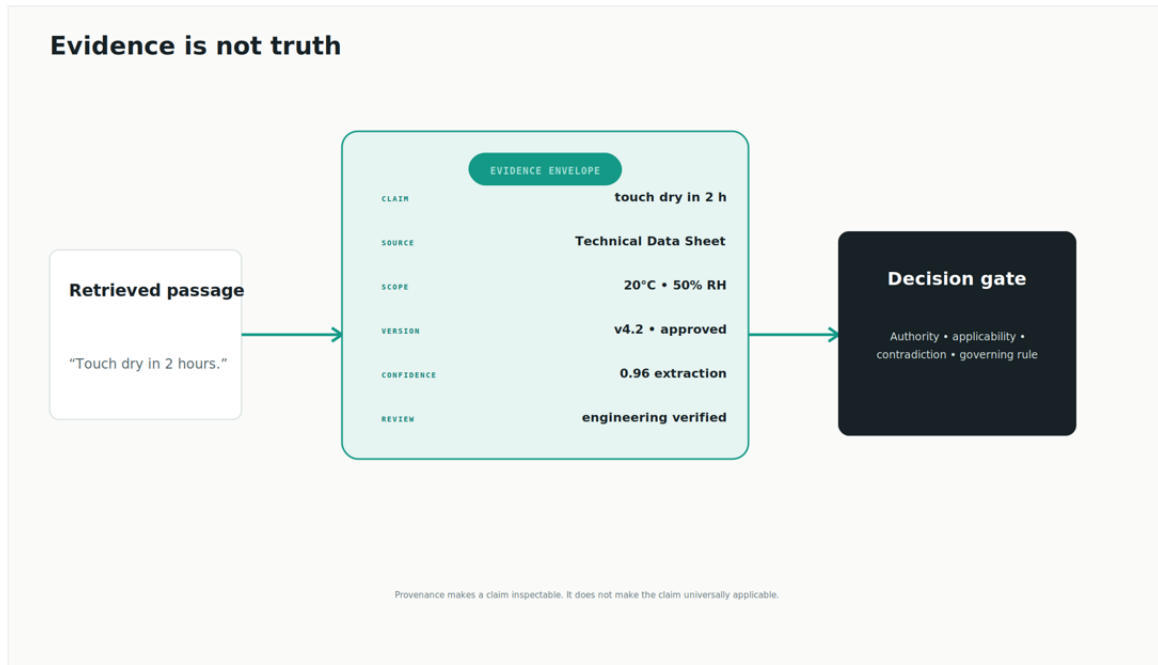


Figure 07 Evidence is not truth.

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The Inference Engine

The inference engine transforms knowledge into decisions.

Example:

IF Concrete AND Forklift Traffic AND Interior

THEN

Require: Heavy Duty Epoxy System

Exclude: Decorative Acrylic Coatings

The rules are:

- version controlled
- explainable
- testable
- reviewable
- auditable

Unlike prompts, rules can be governed.

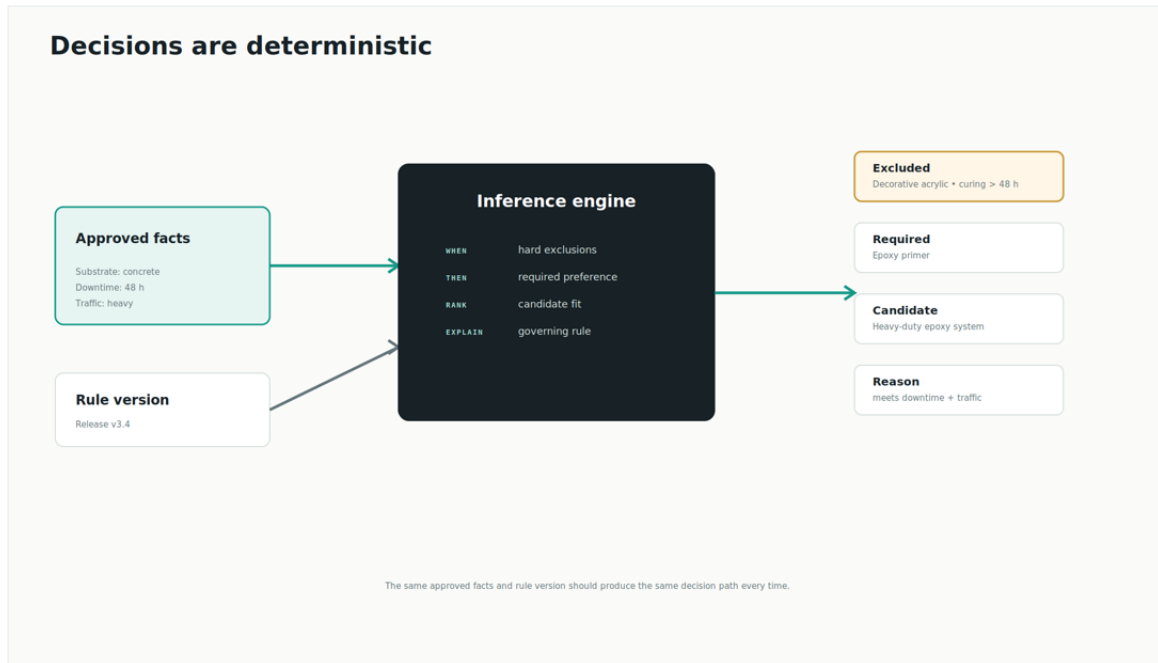


Figure 08 Decisions are deterministic.

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Why Explainability Matters

Industrial recommendations have consequences.

Incorrect advice affects:

- warranties
- liability
- safety
- compliance
- reputation

The system should therefore answer:

Why was this recommended?

Why was another option excluded?

Every recommendation should cite both supporting evidence and governing rules.

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Guided Selling as Diagnostic Reasoning

Traditional search narrows products.

Guided selling narrows uncertainty.

Each interaction should remove the largest remaining ambiguity.

Instead of twenty questions, ask the next best question.

Examples:

Is the surface concrete?

Is water actively flowing?

Is chemical resistance required?

The objective is diagnosis, not interrogation.

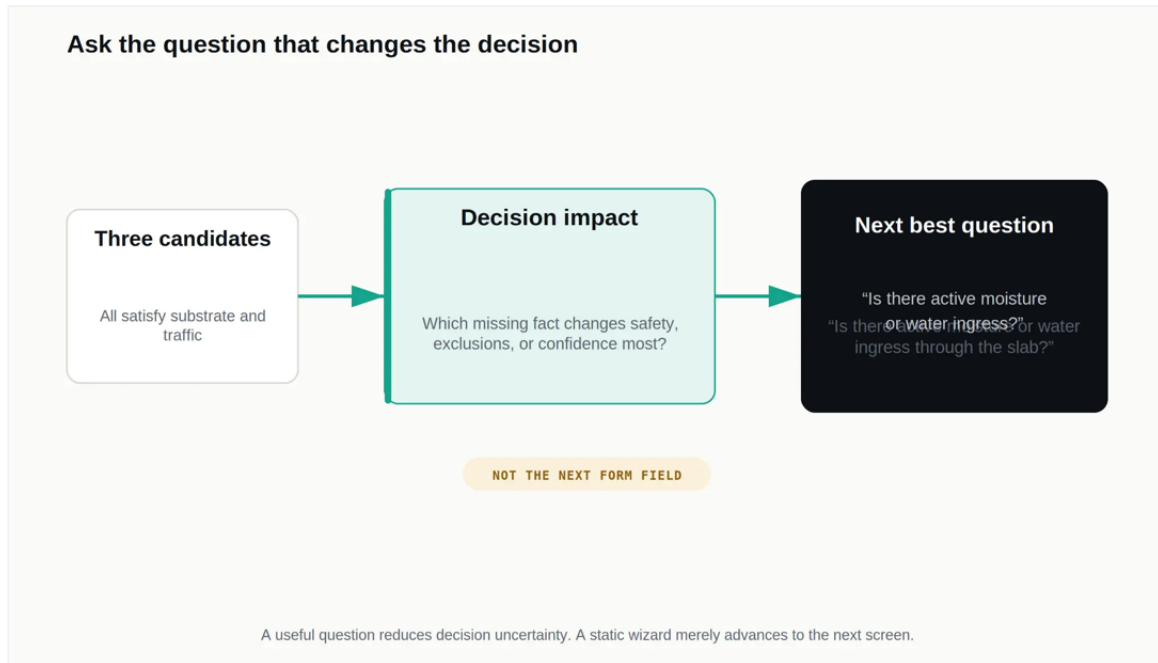


Figure 09 Ask the question that changes the decision.

Coverage, Pricing and Commerce

These layers should remain deterministic.

Coverage uses mathematics.

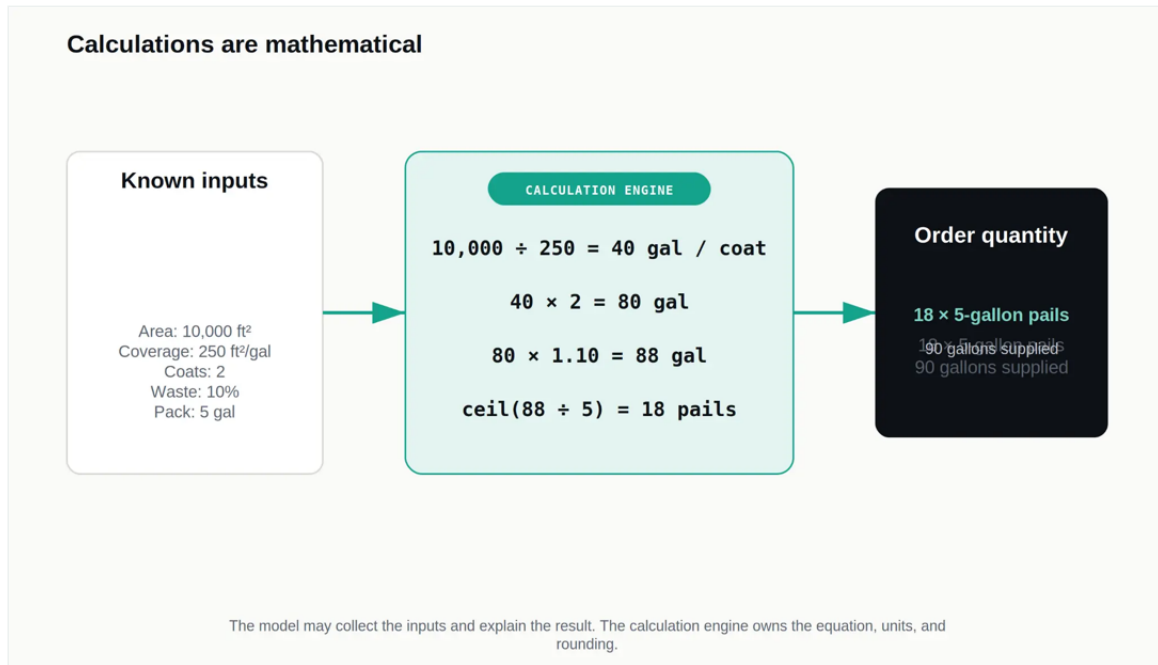


Figure 10 Calculations are mathematical.

Pricing uses commercial policy.

Commerce uses transactional systems.

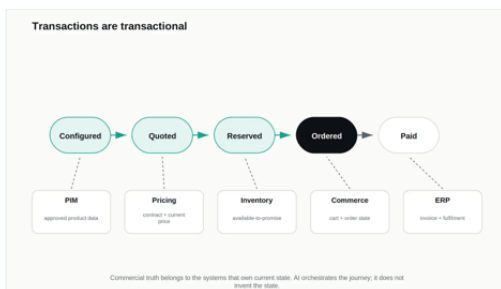


Figure 11 Transactions are transactional.

None should depend upon probabilistic text generation.

AI as an Orchestrator

The language model becomes the conductor.

It coordinates specialised engines.

It does not replace them.

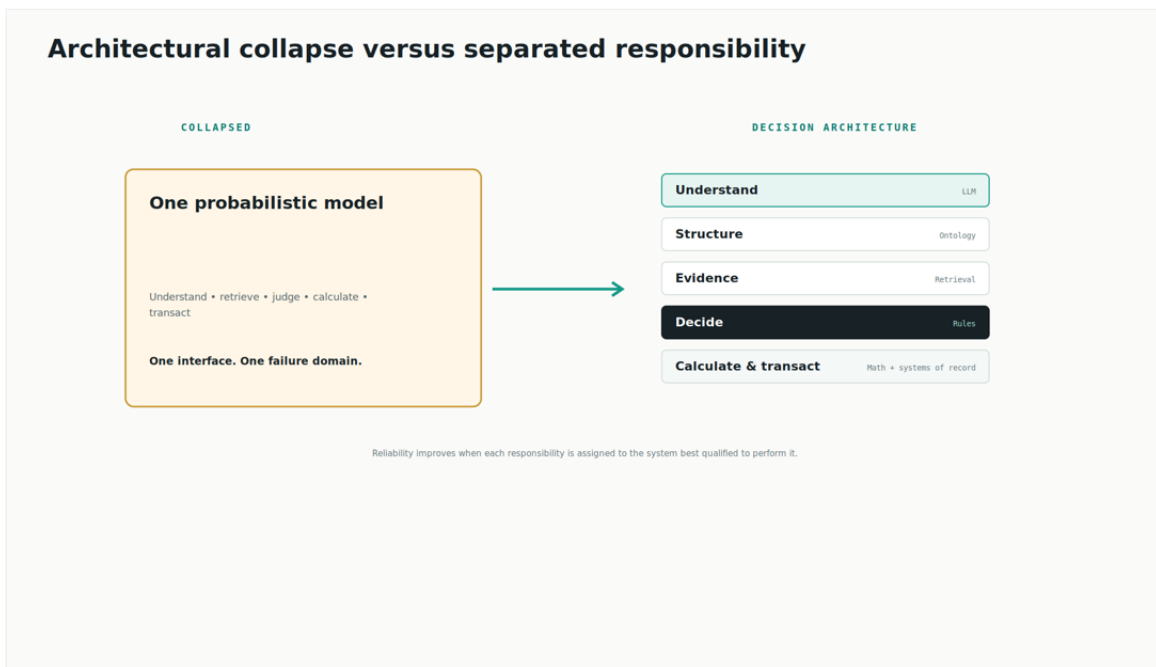


Figure 02 Architectural collapse versus separated responsibility.

Responsibilities become:

LLM → Understand

Ontology → Structure

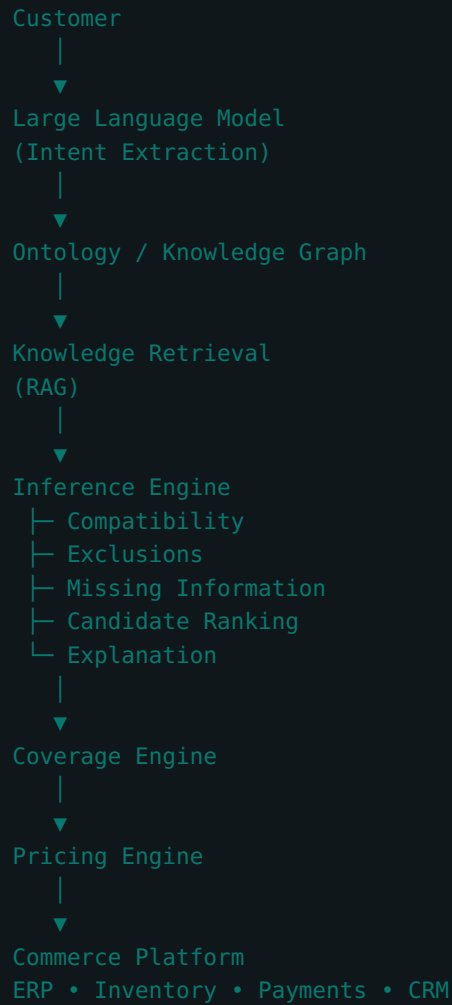
Retrieval → Gather evidence

Inference → Decide

Calculation → Compute

Commerce → Execute

Reference Architecture



The Enterprise Decision Pipeline



Figure 03 The enterprise decision pipeline.

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Implementation Roadmap

Phase 1

- Build the ontology.
- Normalize the product master.
- Create solution systems.

Phase 2

- Add deterministic inference.
- Add guided conversations.

Phase 3

- Introduce RAG over controlled documentation.

Phase 4

- Integrate pricing and commerce.

Phase 5

- Continuous learning from successful recommendations.

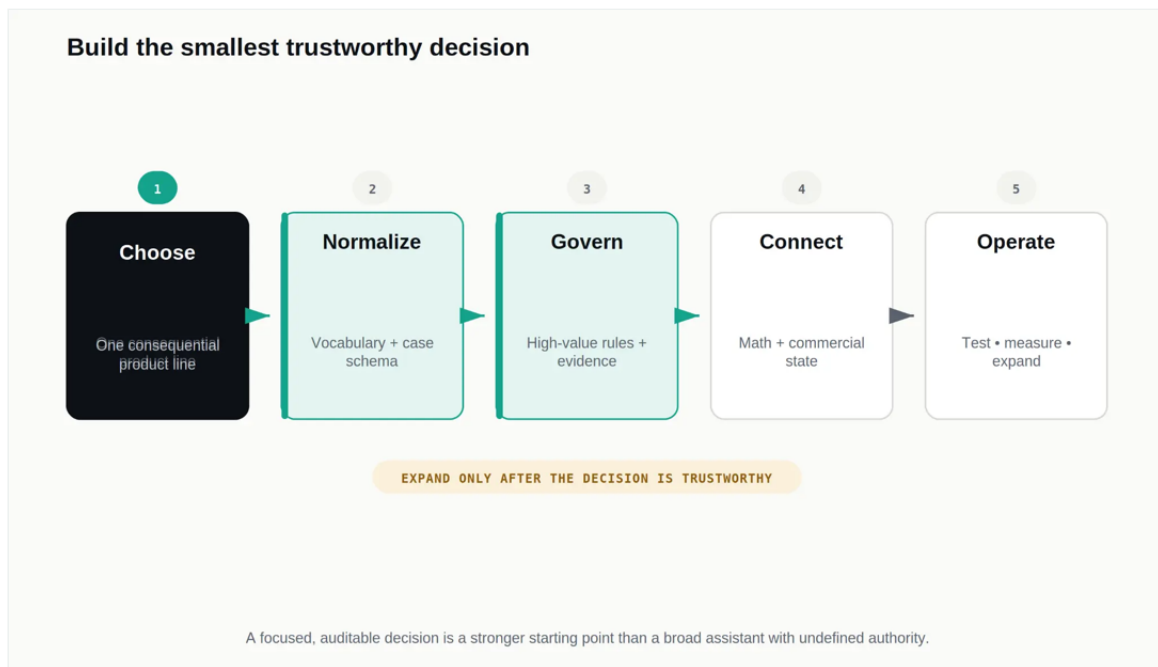


Figure 13 Build the smallest trustworthy decision.

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Common Anti-Patterns

- Treating an LLM as a rules engine.
- Letting RAG determine commercial truth.
- Embedding business rules inside prompts.
- Mixing pricing logic with recommendation logic.
- Allowing free-form AI to calculate regulated engineering values.
- Optimizing search instead of reducing uncertainty.

Conclusion

Enterprise AI is entering a second phase.

The first phase demonstrated that machines can understand language.

The second phase will determine whether machines can support trustworthy decisions.

That future will not belong to systems with the largest context windows.

It will belong to systems with the clearest architecture.

Understanding is probabilistic.

Knowledge is structured.

Inference is deterministic.

Calculations are mathematical.

Commerce is transactional.

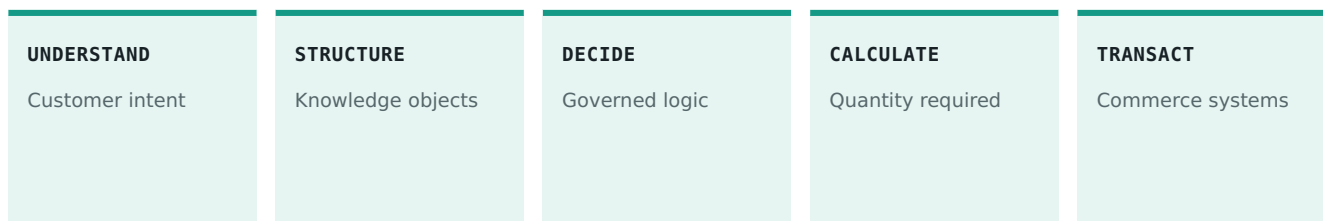
When each layer performs only the role it is uniquely qualified to perform, AI stops being an impressive demonstration and becomes reliable enterprise infrastructure.

About the Author

This paper presents an architectural viewpoint developed from observing complex B2B commerce, manufacturing and industrial product-selection systems where correctness, explainability and commercial governance matter as much as conversational capability.

How Selrite applies this architecture

Selrite turns fragmented product data, technical documentation, and application knowledge into guided buying decisions for people who know the job, but not necessarily the SKU.



Language models manage ambiguity. Approved knowledge, deterministic rules, calculations, pricing, and transaction systems remain authoritative where correctness matters.

FROM FIELD GUIDE TO WORKING SYSTEM

Selrite helps manufacturers turn complex product knowledge into explainable recommendations, calculated quantities, governed pricing, and ready-to-execute commerce decisions.

Explore the architecture: selrite.ai

See it in practice: selrite.ai