

# How to build context-powered AI agents

AI agents are increasingly capable of accessing enterprise data, retrieving documents, interacting with applications, and executing complex workflows. The challenge is no longer connecting an agent to information. **The challenge is ensuring that information is interpreted in a way that reflects how the business actually understands it.**

Organizations rely on thousands of definitions, relationships, policies, metrics, and business rules that have accumulated over years of operation. These elements provide meaning to data. They determine what constitutes a high-value customer, how risk is measured, which signals indicate churn, and what actions should follow from a particular situation. While these interpretations may seem obvious to experienced employees, they are rarely explicit in the underlying data itself.

As organizations evolve, context evolves with them. Products are introduced, regulations change, business processes are redesigned, and new data sources emerge. Definitions that were once universally understood become fragmented across teams, systems, and applications.

**The fundamental challenge, therefore, is creating a reliable framework that continuously connects information to business meaning.**

## Why Context Becomes Difficult to Maintain

### Definitions Change

Terms such as customer, risk, profitability, service level, and product success often evolve over time. Different departments may apply different interpretations, creating inconsistency.

### Relationships Change

New products, channels, partners, and systems constantly introduce new relationships between business entities. Context must evolve to reflect those connections while remaining consistent.

### Governance Becomes Essential

Without a mechanism for maintaining definitions and relationships, organizations risk creating multiple, conflicting interpretations of the same concept.

## The challenge is no longer:

How do we provide AI access to information?

## The challenge is:

How do we create, maintain, and govern business meaning so AI can interpret information consistently? This question has led to two fundamentally different approaches to creating context.

**Context can be created through enterprise business modeling, semantic reasoning, and data-driven discovery. Teradata combines these approaches to create richer, more trusted business context.**

## Approaches to Building Business Context

### Bottom-Up Context Creation

- In a bottom-up approach, context emerges from the information available to the system. LLMs identify relationships, patterns, and associations across data, documents, conversations, and user interactions.
- Rather than beginning with a predefined Industry Knowledge Model, the model builds its interpretation dynamically from observed signals. Context continuously evolves through inference and retrieval.
- This approach prioritizes adaptability and discovery, allowing AI systems to uncover relationships that may not have been explicitly modeled in advance.

### Top-Down Context Creation

- Organizations begin by explicitly modeling business concepts, definitions, entities, attributes, and relationships. Business meaning is intentionally designed before it is applied to AI interactions.
- Industry Knowledge Models provide a structured representation of how concepts such as customers, products, accounts, interactions, and business events relate to one another.
- This approach prioritizes transparency, governance, and long-term maintainability by treating business meaning as an enterprise asset that can be reviewed, refined, and reused over time.

**With Context Engine:** "This customer has been with us for 15 years. Their balance has declined 34% over two quarters and NPS score is 3/10 — our highest-risk churn profile. Escalating to a Senior Relationship Manager with a personalized retention offer and fee waiver pre-approval. Response target: same business day."

**Result:** knows the full weight of the relationship, applies your organization's specific definition of churn risk, and takes the right action — immediately.

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## From Business Information to Business Meaning

| Inference-Led Context                   | Industry Knowledge Model-Led Context                   |
|-----------------------------------------|--------------------------------------------------------|
| Starts with available information       | Starts with modeled business concepts                  |
| Relationships emerge through inference  | Relationships are explicitly defined                   |
| Meaning is assembled dynamically        | Meaning is organized and maintained                    |
| Context is reconstructed repeatedly     | Context is reusable and governed                       |
| Responses depend on discovered patterns | Responses are grounded in established business meaning |

**Why Begin with an Industry Knowledge Model?**  
Industry Knowledge Models provide structured business concepts and relationships, while telemetry, semantic reasoning, and enterprise metadata continuously enrich and validate those relationships over time.

The approach explored in this workshop begins with Industry Knowledge Models because they provide a durable representation of business meaning that can evolve alongside the organization rather than being reconstructed for every interaction.

This offers several advantages:

- Consistent Interpretation:** Business concepts such as customer, churn, profitability, product performance, or risk retain a common meaning across use cases, AI applications, and teams.
- Transparent Governance:** Definitions and relationships remain visible and reviewable, allowing organizations to refine business meaning as requirements change.
- Stronger Grounding:** AI responses can be anchored to approved business concepts and relationships instead of relying solely on inferred associations from retrieved information.
- Reusable Context:** The same Industry Knowledge Model can support multiple data products, semantic layers, AI agents, and future use cases without recreating the underlying business meaning each time.

**Rather than treating business context as something that must be rediscovered for every interaction, Teradata treats it as a reusable enterprise asset, organized once, maintained over time, and continuously applied wherever AI needs to understand how the business thinks.**

| What Does an Industry Knowledge Model Contain?                                                                       |                                                                              |  |  |
|----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|--|--|
| <b>Business Concepts</b>                                                                                             |                                                                              |  |  |
| Customers, accounts, products, contracts, suppliers, locations, employees, assets, and other core business entities. |                                                                              |  |  |
| <b>Definitions</b>                                                                                                   |                                                                              |  |  |
| The agreed meaning of key business terms and metrics.                                                                |                                                                              |  |  |
|                                                                                                                      | <b>Relationships</b>                                                         |  |  |
|                                                                                                                      | How those concepts connect to one another across the enterprise.             |  |  |
|                                                                                                                      | <b>Semantics</b>                                                             |  |  |
|                                                                                                                      | The contextual rules that influence how information is interpreted and used. |  |  |

# The vocabulary of context-powered AI agents

The workshop introduced several concepts that describe how context is created, organized, and applied. The definitions below provide a shared vocabulary for the remainder of the discussion.

| Term                                                        | Plain-English + In-practice Example                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Agent</b><br><b>In Practice</b>                          | <b>Software that reasons, plans, and takes actions on your behalf — not just answering questions</b><br>A customer satisfaction agent doesn't just flag a dropped score. It identifies affected accounts, prioritizes them by revenue risk, drafts a retention communication, and schedules a specialist callback — without a human in the loop                                                                                        |
| <b>Context</b><br><b>In Practice</b>                        | <b>The business meaning surrounding your data: definitions, relationships, and rules your organization uses to interpret what data represents</b><br>"Revenue = \$4.2M" is data. "Revenue fell 12% following a competitor's market entry, triggering a mandatory retention review under Q3 policy" is context. The meaning behind the number is what tells an agent what to do.                                                        |
| <b>Context Engine</b><br><b>In Practice</b>                 | <b>The Teradata system that discovers, organizes, and delivers business context to AI agents at the moment of query — in real time</b><br>When your agent asks "who are our highest-risk customers?", the Context Engine ensures "risk" means what your organization has defined — combining tenure, balance trajectory, sentiment, and product usage — not a generic proxy from a training dataset.                                   |
| <b>Data Product</b><br><b>In Practice</b>                   | <b>A curated, governed, business-ready data asset with defined ownership, quality standards, and access controls — designed for reuse, not rebuilt for each use case</b><br>A "customer health score" data product combines CSAT, churn probability, balance trends, and product engagement — refreshed daily, available to any agent or analyst who needs it.                                                                         |
| <b>Industry Knowledge Model</b><br><b>In Practice</b>       | <b>A structured representation of business concepts, relationships, definitions, and semantics that provides a common framework for interpreting information</b><br>"Revenue = \$4.2M" is data. "Revenue fell 12% following a competitor's market entry, triggering a mandatory retention review under Q3 policy" is context. The meaning behind the number is what tells an agent what to do. callback — without a human in the loop. |
| <b>Skill</b><br><b>In Practice</b>                          | <b>A specific, named capability an agent can invoke when a task requires it — a tool it picks up and uses, not hardcoded into the agent itself</b><br>A "send retention offer" Skill allows an agent to trigger a personalized discount workflow through your CRM — selecting the right offer tier based on customer segment — without requiring new integration code for each campaign.                                               |
| <b>Semantic Layer</b><br><b>In Practice</b>                 | <b>A business-friendly translation of raw database structures into the terms, metrics, and hierarchies your teams recognize — hiding technical complexity without hiding analytical power</b><br>A business analyst asks "show me the top 20 customers by revenue in the Northeast for Q3." The semantic layer maps this to the correct SQL across four tables — with no schema knowledge required.                                    |
| <b>Grounding</b><br><b>In Practice</b>                      | <b>The process of providing AI with relevant, authoritative business information that constrains and guides responses</b><br>A customer asks whether they qualify for a premium service tier. Instead of generating an answer from general knowledge, the agent references the company's eligibility rules, account history, and current policy documentation before responding.                                                       |
| <b>Ontology</b><br><b>In Practice</b>                       | <b>A structured representation of business concepts, relationships, definitions, and semantics that provides a common framework for interpreting information</b><br>"Revenue = \$4.2M" is data. "Revenue fell 12% following a competitor's market entry, triggering a mandatory retention review under Q3 policy" is context. The meaning behind the number is what tells an agent what to do. callback — without a human in the loop. |
| <b>Retrieval-Augmented Generation</b><br><b>In Practice</b> | <b>A technique that supplements AI responses with relevant enterprise information retrieved at query time, ensuring responses are grounded in current and authoritative data</b><br>When asked why customer complaints have increased, the agent retrieves support tickets, service outage reports, operational metrics, and policy documentation before generating a response.                                                        |

# From data to action — what you built today, and why it matters.

## Connecting AI to data is a solved problem.

The harder problem is giving that AI the context it needs to act intelligently. Today's workshop showed you what that looks like end-to-end: on a real use case, using infrastructure that connects directly to your existing Teradata environment.

## How The Concepts Appeared in Today's Workshop

The customer satisfaction scenario demonstrated how business meaning is created, organized, and applied throughout an AI workflow. Each step introduced a different element of the context creation process.

### 1 Explore Business Information

You began by interacting with customer satisfaction data using natural language, allowing business questions to be expressed in familiar business terms rather than technical queries.

**Behind The Scenes:** The semantic layer translates business terminology into the underlying data structures required to answer a question.

Context is not just data. It is the business meaning, relationships, policies, and definitions that help AI make decisions the way your business does. Today's workshop focused on customer satisfaction analysis — a single use case, worked end-to-end, to establish the pattern. The same infrastructure — data products, knowledge models, semantic definitions, skills, and agents — applies across every high-value business problem where AI needs to understand your context, not just your data.

### 2 Organize Information for Reuse

You worked with customer signals that had been curated, governed, and prepared around a specific business objective, creating a reusable foundation for analysis.

**Behind The Scenes:** A data product organizes relevant business information into a trusted asset that can be consumed consistently across different users, applications, and AI interactions.

#### Download the Context Engine eBook[NS1.1]

A practical guide on how Industry Knowledge Models, grounding, semantic definitions, and agent interactions can be applied across different industries and business processes. Visit [teradata.com/context-engine](https://teradata.com/context-engine)

### 3 Apply Business Meaning

You connected customer signals to business definitions, relationships, and organizational knowledge, creating a shared interpretation of concepts such as customer health, satisfaction, and churn risk.

**Behind The Scenes:** Industry Knowledge Models provide the framework that connects business concepts and relationships, ensuring information is interpreted consistently across use cases.

#### ★ About Teradata

Teradata's Autonomous AI and Knowledge Platform activates enterprise intelligence by unifying data, knowledge, and business context to achieve tangible outcomes. For organizations that have built their data foundations on Teradata over years or decades, the Context Engine represents the activation layer that transforms that foundation into a competitive advantage for the AI era — connecting the data you already have to the intelligence your business needs, without disruption and without starting over.

With Teradata, organizations can provide AI agents with the full context required to act with precision when it matters — on premises, in the cloud, or through a hybrid approach that fits the reality of your existing environment. Learn more at [Teradata.com](https://Teradata.com).

### 4 Ground Responses in Business Context

You used relevant business definitions, relationships, and customer information to evaluate the scenario and determine which customers warranted attention.

**Behind The Scenes:** Grounding constrains AI responses using authoritative business information, helping ensure outputs reflect established business meaning rather than generalized model assumptions.

#### What you build today applies to:

- Customer retention · Fraud detection
- Supply chain risk · Personalization
- Clinical decision support · Regulatory compliance
- Service operations · Employee experience
- Asset performance · Revenue optimization

Full worked examples for each in the Context Engine eBook.