Fivetran + dbt Labs

Enterprise AI Data Maturity Model

Assess AI readiness and strengthen the data foundation for trusted AI and agents

Executive summary

AI has moved beyond experimentation. Organizations are investing in AI and embedding it into everyday operations, yet true AI maturity remains rare.

Over the next three years, 92% of companies plan to increase their AI investments, but only 1% of leaders consider their organizations mature in AI deployment.

As AI moves into production, organizations need more than models and use cases. They need the trusted data, governance, context, and operational readiness required to scale AI with confidence.

The **Enterprise AI Data Maturity Model** helps organizations assess the data capabilities required to scale AI. It outlines how organizations progress from trusted data to trusted AI and agents, helping leaders identify their current maturity stage, recognize operational gaps, and prioritize what to build next.

This guide explores the five stages of that progression and provides a practical framework for evaluating AI readiness.

How this guide fits into the broader dbt Labs AI journey

This guide builds on The data leader's primer for agentic AI, which explores why trusted data, governance, and context are essential for successful AI initiatives.

While the Primer explains why AI readiness matters, this guide helps organizations determine where they are today and what capabilities they need to progress toward trusted AI and agents.

"AI and agents are only as strong as the data behind them. By investing in Fivetran and dbt, we've built the reusable, trusted data assets that are central to how we scale AI and drive innovation."
— Piyush Bhargava, Sr. Director Global Data & Analytics, DocuSign

Why AI maturity matters now

AI is scaling faster than organizations can support it

Organizations are no longer asking whether AI can deliver value. They are focused on how to deploy it reliably, responsibly, and at scale. According to the dbt Labs 2026 State of Analytics Engineering Report, AI is becoming an integral part of analytics engineering workflows. But as AI accelerates the volume and pace of analytics work, the trust and governance mechanisms supporting that work are struggling to keep up.

This creates a growing operational challenge: organizations need to move faster while maintaining confidence in the data, definitions, context, and outputs their AI systems rely on.

What starts to break as AI scales

As AI expands across teams and business functions, existing weaknesses become more visible. Data quality issues spread further, governance struggles to keep pace, and ownership becomes harder to define. Infrastructure and compute costs become more difficult to manage, while AI-generated answers require greater traceability and explanation.

These issues share the same underlying cause: AI is scaling faster than the trusted data foundation required to support it.

Common barriers to AI maturity

While every organization's journey is different, many encounter similar barriers:

- Inconsistent definitions
- Fragmented data governance
- Poor data quality
- Limited visibility into data lineage
- Unclear ownership
- Missing business context

83% say increasing trust in data and data teams is an important priority

71% say shipping data products faster is a priority

71% are concerned about hallucinated or incorrect data reaching stakeholders

53% report poor data quality as a top challenge

41% cite ambiguous data ownership as an ongoing challenge

Source: dbt Labs 2026 State of Analytics Engineering Report

From AI adoption to AI maturity

Adopting AI is only the beginning. Maturity depends on whether an organization can support AI reliably across teams, use cases, and systems.

Trusted data, governance, context, and interoperability allow organizations to move beyond isolated initiatives and build AI systems and agents that can be managed, governed, and scaled over time.

AI maturity starts with trusted data

Every AI system depends on the quality, consistency, and context of the data it receives. Without trusted inputs, shared business definitions, and governance controls, even advanced models struggle to produce reliable business outcomes.

Building trusted data, along with the ownership, governance, and business context behind it, creates the foundation for trusted AI and agents.

1/3

Only about one-third of organizations report scaling AI across the enterprise.

77%

of technology leaders say current AI governance frameworks are inadequate.

Top challenges

Gartner identifies data availability and quality among the top challenges in AI implementation.

95%

MIT research found that 95% of enterprise GenAI implementations showed no measurable P&L impact, citing challenges around workflow integration and contextual learning

Building AI maturity over time

Organizations build AI maturity progressively by strengthening trust, governance, context, interoperability, and operational readiness.

The Enterprise AI Data Maturity Model organizes this progression into two phases and five stages, helping organizations understand their current capabilities and determine what they need to develop next.

Introducing the Enterprise AI Data Maturity Model

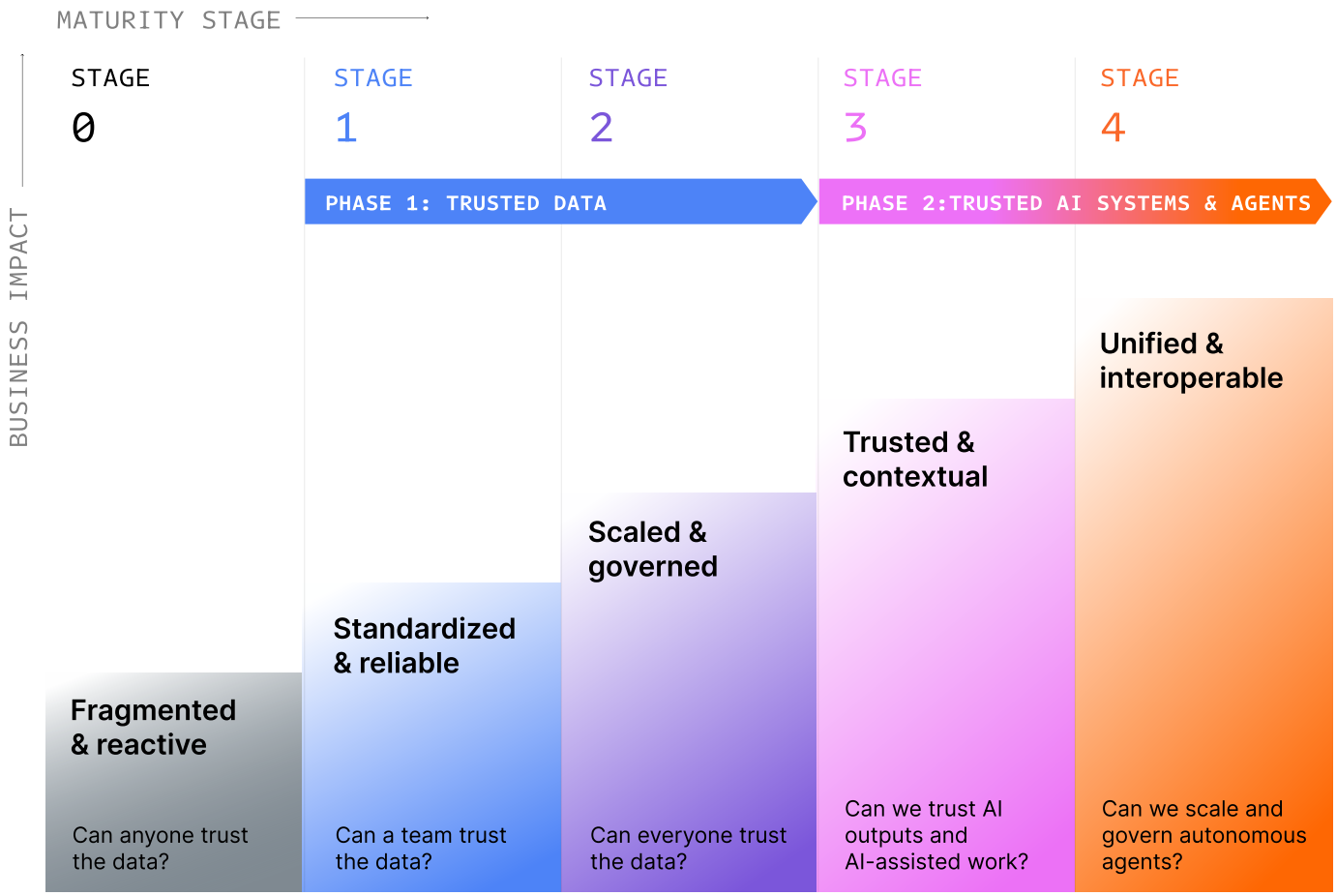
Most AI maturity discussions focus on AI adoption. They assess AI strategy, workforce readiness, use cases, or overall adoption. While these are important indicators of AI progress, they do not fully reveal whether an organization has the trusted data infrastructure needed to support AI reliably at scale.

The Enterprise AI Data Maturity Model focuses on the trusted data infrastructure organizations need to build and scale trusted AI and agents.

Rather than measuring AI adoption alone, the model evaluates the capabilities that make it possible:

- Data quality
- Governance
- Ownership
- Cost and operational efficiency
- Context
- Data architecture and interoperability

The Enterprise AI Data Maturity Model at a glance



The model helps organizations assess their current AI data maturity and identify the capabilities needed to progress from trusted data to trusted AI and agents.

Organizations can use it to:

- Identify their current maturity stage
- Understand capability gaps
- Prioritize future investments
- Build toward trusted AI systems and agents

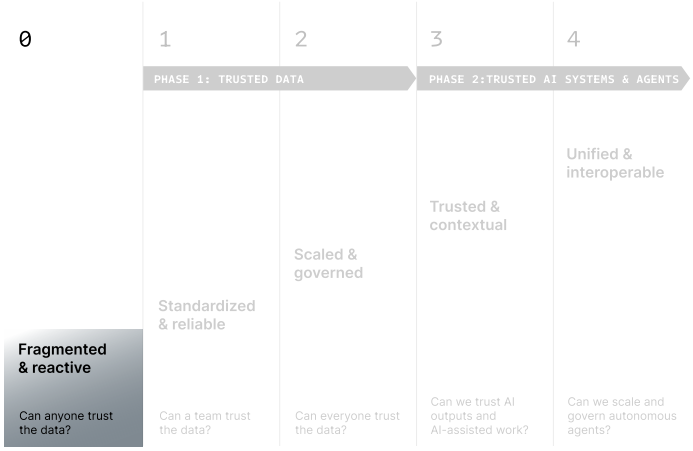
Understanding the five stages of maturity

The five stages show how organizations progress from fragmented data practices to the trusted, governed, and interoperable foundation required for AI systems and agents. Each stage builds on the capabilities established in the one before it.

Fragmented and reactive

Stage 0

Core question:
Can anyone trust the data?



Data trust is low. Data is fragmented and lives within silos. Logic and definitions are scattered, ungoverned, and undocumented. Costs are difficult to understand.

Organizations at this stage rely on data spread across multiple tools, with no centralization and little consistency in how it is transformed, documented, and governed. Definitions vary across teams, governance is ad hoc, and institutional knowledge often lives with individuals rather than being documented and shared.

As a result, organizations struggle to scale analytics or establish the trusted data foundation needed to support AI initiatives.

Fragmented and reactive

Characteristics

- Data and logic scattered across tools and spreadsheets
- No version control
- No automated testing
- No single source of truth
- Limited governance
- Siloed data architecture
- Knowledge trapped in people's heads

Business impact

- Minimal trust in data
- Slow decision-making
- High operational overhead
- Limited visibility and control over data and compute costs
- Reactive operating model

Common symptoms

- Multiple versions of the same metric
- Frequent reporting discrepancies
- Data quality issues discovered by business users
- AI initiatives struggle due to inconsistent data

Priorities for progressing to Stage 1

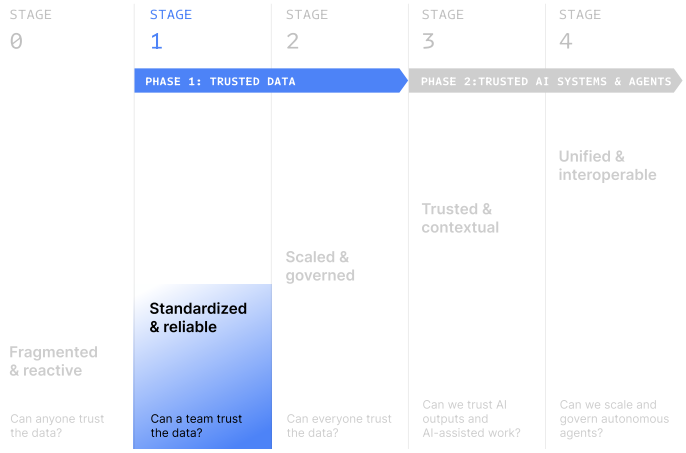
Organizations progress by introducing consistent, repeatable data practices that improve trust and reduce operational complexity.

- Establish version-controlled transformation workflows
- Introduce testing and quality controls
- Create trusted datasets
- Begin documenting business logic

Standardized and reliable

Stage 1

Core question:
Can a team trust the data?



Data is reliable in places. Transformation logic is version-controlled, tested, and consistent. Costs are now visible.

Organizations at this stage begin establishing consistent data practices within individual teams and critical domains. Some data from key sources is centralized, cleaned, and transformed into analytics-ready tables in the warehouse. Testing becomes part of the development process, while documentation begins capturing institutional knowledge that previously lived with individuals. As trust grows within these early domains, the foundation for broader governance and standardization begins to take shape.

Standardized and reliable

Characteristics

- Version-controlled transformation logic
- Automated testing
- CI/CD processes
- First trusted domains
- Basic documentation
- Cost visibility
- Emerging analytics engineering practices
- Centralization of data in a single source of truth

Business value

- Improved operational efficiency
- Improved developer productivity
- Better data quality
- Better collaboration

What organizations gain

- Greater confidence in key datasets
- Faster onboarding
- More consistent reporting
- Reduced manual work

Priorities for progressing to Stage 2

The next step is extending trusted practices beyond individual teams, making governance, ownership, and quality standards consistent across the organization.

- Expand trusted practices beyond individual teams
- Establish governance standards
- Increase observability and ownership
- Scale documentation and testing
- Gain access to all data sources

How Fivetran + dbt Labs accelerate this stage

dbt Wizard

dbt Wizard helps teams accelerate AI-assisted analytics and development while grounding AI-assisted workflows in trusted, governed data, standardized business definitions, and established organizational practices. By working from trusted context, teams can increase productivity while maintaining confidence in AI-assisted outputs.

Other ways Fivetran + dbt Labs accelerate this stage:

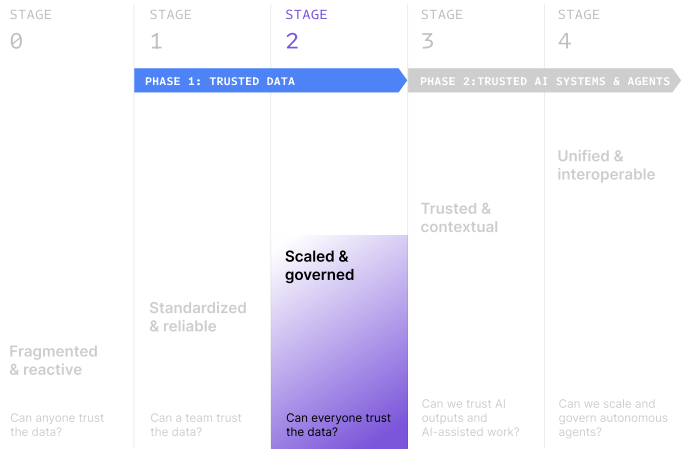
- dbt Core or dbt platform
- Fivetran SaaS Connectors

> "Before dbt Wizard, our engineers were spending more time correcting AI output than they were writing models. Now the agent actually knows our project. It gets the joins right, it respects our contracts, and it doesn't break things downstream. We've seen a 15–20% reduction in production incidents since we rolled it out."
> **— Erion Krasniqi, Junior Data Scientist, Endress+Hauser InfoServ**

Scaled and governed

Stage 2

Core question:
Can everyone trust the data?



Data is trustworthy at scale. Standardized practices are deeply adopted across teams and use cases. Governance becomes an organizational capability rather than a team-level practice.

Organizations at this stage have expanded trusted data practices beyond individual teams. Data from all sources, including SaaS applications, core databases, and proprietary systems, is centralized, governed, and transformed. Clean, quality data is increasingly piped back to operational systems that need it to inform business actions and decisions.

As organizations scale across teams, data mesh architectures help balance centralized governance with domain ownership, enabling trusted data to be managed closer to the business. Governance, documentation, and data quality standards, often grounded in software engineering practices such as version control, testing, and CI/CD, are applied consistently across the organization. This creates a shared foundation for trusted, self-service analytics that both people and AI systems can rely on.

As adoption grows, organizations gain greater visibility into the operational cost and complexity of running AI at scale. These capabilities help improve efficiency and position them to scale AI initiatives with greater confidence.

Scaled and governed

Characteristics

- Governed pipelines
- Continuous quality monitoring
- Business glossary and shared definitions
- Access controls and lineage
- Self-service data access
- Domain ownership
- Reduced compute costs
- Data mesh

Business value

- Scaled trust and governance
- Lower warehouse costs
- Less tooling and maintenance
- Development capacity freed for AI initiatives

What organizations gain

- Consistent definitions across the business
- Greater self-service adoption
- Stronger governance
- Increased confidence in enterprise-wide reporting

Priorities for progressing to Stage 3

The next phase of maturity extends trust beyond governed data to the context required for reliable AI systems and agents.

- Extend trust beyond datasets into context
- Establish semantic consistency
- Create machine-readable governance
- Enable traceability for AI outputs
- Increase data ownership and portability

"Before dbt State, every job rebuilt every model in the lineage. Every. Single. Time. Now, with dbt State, dbt checks if source data changed. If it didn't, the model is skipped. For us, that resulted in a 9% compute reduction, 35% fewer models built, and a 15% reduction in Snowflake backfill costs."
— Parag Shah, Vice President of Data, CarGurus

How Fivetran + dbt Labs accelerate this stage

dbt State

As trusted data practices scale across teams, understanding what has changed becomes increasingly important. dbt State helps teams identify what has changed between project states so they rebuild only what's necessary. This reduces compute costs, accelerates development, and makes governed analytics more efficient as AI initiatives grow.

Other ways Fivetran + dbt Labs accelerate this stage:

- dbt platform
- dbt Mesh
- dbt MCP server
- Fivetran Database Connectors
- Fivetran Connector SDK
- Fivetran Activations

45%

of high-AI-maturity organizations keep AI initiatives operational for three years or more, compared to 20% of low-maturity organizations.

Source: Gartner research

"With Fivetran and dbt, what used to take months now happens in weeks, giving the business faster access to trusted data and creating the foundation we need to scale analytics, agents, and AI across the enterprise."
— Akshay Agrawal, Director of Data Engineering, Zendesk

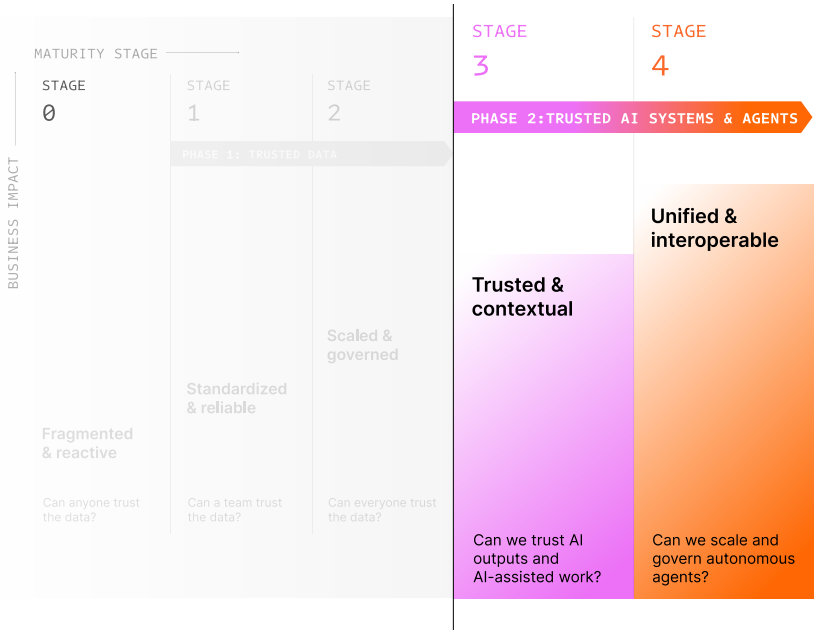
The inflection point: From trusted data to trusted AI and agents

The first three stages focus on building trusted data.

Stage 3 marks the shift from creating reliable data foundations to enabling trusted AI systems that can reason over governed context.

This is where semantic context, governance, and lineage become critical — not just for people, but for AI.

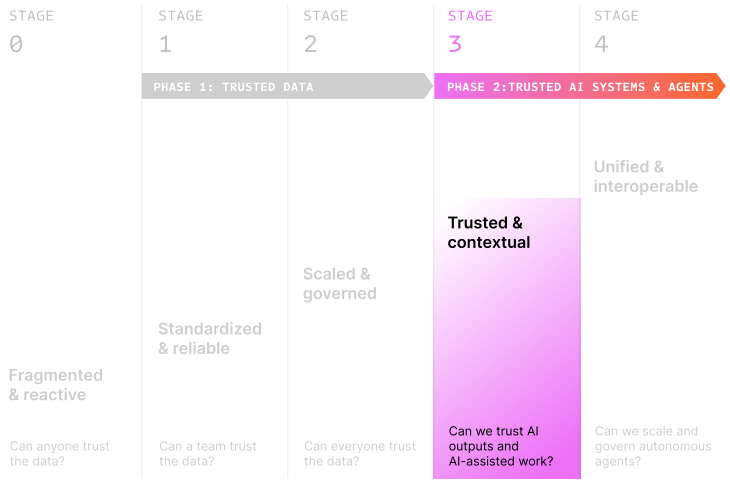
This is where trusted data begins powering trusted AI systems and agents.



Trusted and contextual

Stage 3

Core question:
Can we trust AI outputs and AI-assisted work?



Trusted data becomes trusted context that AI systems and agents can work with. Semantic definitions, lineage, and business documentation are exposed through a shared context layer in an open, machine-readable format that AI systems can consistently interpret and reason over. Governance is machine-readable and structured for AI consumption and reasoning, making outputs traceable and verifiable.

At this stage, organizations land data in open formats with metadata and lineage intact, allowing AI systems and agents to reason over trusted context back to the source while maintaining consistency and interoperability across engines. Architectures are designed to remain flexible across compute platforms, LLMs, engines, and agents, allowing organizations to optimize for cost and efficiency as AI adoption grows. Governance, business definitions, and metadata are structured so AI systems can consistently interpret, reason over, and use organizational data. As a result, AI outputs become explainable, traceable, and grounded in trusted data.

Trusted and contextual

Characteristics

- Semantic models and metric definitions exposed to AI
- Shared context layer for agents
- Machine-readable governance
- Agent evaluation frameworks
- Data contracts
- Auditability
- Traceable AI outputs
- Open, standards-based foundation

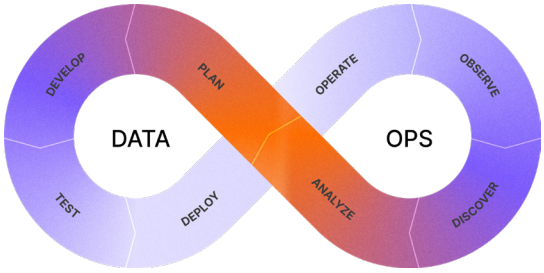
Business value

- Trustworthy agent outputs
- Conversational analytics adopted broadly
- Faster, more informed decision-making
- Reduced token costs
- Greater data ownership and reduced vendor lock-in

Priorities for progressing to Stage 4

The next phase of maturity extends governance and trust beyond individual systems, enabling autonomous AI systems and agents to operate consistently across platforms.

- Extend governance beyond individual systems
- Enable cross-platform interoperability
- Enable governance to travel with the data
- Prepare for autonomous operation at scale



How Fivetran + dbt Labs accelerate this stage

dbt Semantic Layer

dbt Semantic Layer exposes trusted business definitions, metrics, and semantic context in a machine-readable format that both people and AI systems can consistently understand and use. By providing governed context across analytics and AI workflows, it helps organizations build explainable, traceable AI on trusted data.

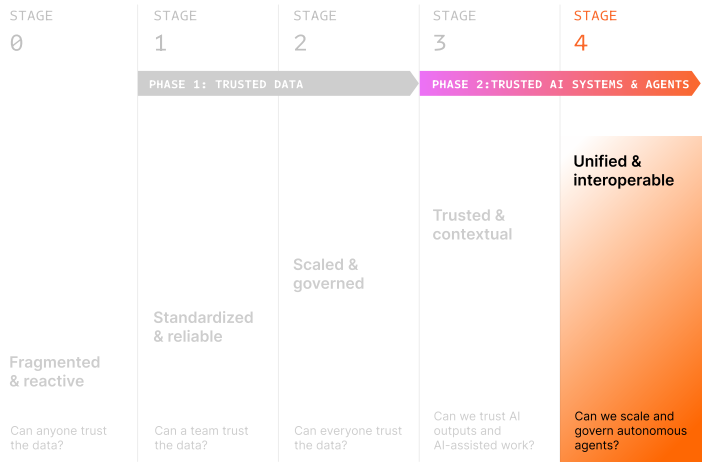
Other ways Fivetran + dbt Labs accelerate this stage:

- Fivetran Managed Data Lake Service

> "By centralizing our entity relationships in the dbt Semantic Layer, where all of our data transformations already live, we could easily create visualizations in our B2B product. We delivered an improved data experience for our B2B partners by eliminating a step in our process, decreasing our data costs by 80%, and increasing reliability and trust."
> **— Ben Kramer, Senior Director of Analytics, Bilt Rewards**

Unified and interoperable

Stage 4



Core question:
Can we scale and govern autonomous agents?

Agents reason more reliably when governance and context travel with them. Context extends beyond the transformation layer to include source metadata, enabling agents to interpret and use both structured and unstructured data. Agents operate autonomously at scale across platforms while remaining governed and auditable.

Organizations at this stage have established the trusted context, governance, and interoperability needed to support autonomous AI systems and agents. Governance extends across platforms and environments, allowing agents to operate with consistent business definitions while remaining grounded in trusted data. This enables organizations to scale AI with greater confidence while maintaining oversight, control, and accountability.

Characteristics

- Autonomous pipeline management
- Automated trust checks
- Governance that travels with the data
- Cross-platform interoperability
- Living institutional knowledge
- Agent-native operating model

Business value

- Cross-functional agent coordination
- Self-optimizing infrastructure
- Risk reduction through auditable governance
- Enterprise-scale AI acceleration

How Fivetran + dbt Labs accelerate this stage

Fivetran and dbt Labs together provide the open, interoperable data foundation needed to support autonomous AI systems at enterprise scale. By combining trusted data movement, governed transformation, and shared context, organizations can enable AI systems and agents to operate consistently across platforms while maintaining trust, traceability, and control.

Capabilities featured at this stage:

- Integrated workflows
- Open Data Infrastructure
- Cross-platform orchestration

"Our focus now is on how we operationalize AI across Inova. With Fivetran and dbt, we're creating the foundation for AI agents and applications that can act on trusted, governed data — not just generate insights, but drive action."
— Jon McManus, Chief Data and AI Officer, Inova Health

What high-maturity organizations have in common

Organizations that successfully scale AI have one thing in common: they invest in the data infrastructure that makes trusted AI possible. Rather than relying on isolated AI initiatives, they build the trusted data, governance, and context that enable AI systems to operate reliably at scale.

Common patterns among higher-maturity organizations:

- Ownership is clearly defined
- Governance is proactive rather than reactive
- Definitions are standardized and accessible
- Trust extends beyond data into context
- AI outputs are explainable and traceable
- AI systems operate within governed boundaries
- Data and infrastructure are open and interoperable, avoiding vendor lock-in
- Systems serve both human analysts and AI agents from the same trusted foundation
- Teams spend less time validating outputs and more time creating value

Key takeaway

Organizations that successfully scale AI do not simply adopt more AI tools. They build the trusted data, governance, and context that allow AI systems and agents to operate reliably.

Assess your AI data maturity

Most organizations exhibit characteristics from multiple stages simultaneously. AI maturity should be viewed as a progression rather than a binary state.

An honest assessment provides the greatest value. Identify the stage that best reflects your organization's current capabilities, then use the results to identify capability gaps, prioritize investments, and determine where to focus next.

Maturity dimensions

Data quality: How reliable, accurate, and consistent is your data?

Governance: How consistently are standards, policies, and controls applied?

Ownership: Are data assets clearly owned and accountable?

Cost and operational efficiency: How effectively does your organization manage data and AI infrastructure costs while scaling?

Context: Can AI systems access trusted business definitions, lineage, metadata, and semantic meaning?

Data architecture and interoperability: How well does your data architecture support interoperability, portability, and AI at scale?

How to use the assessment

Review each maturity dimension and identify the description that best reflects your organization's current state. Most organizations will recognize characteristics from multiple stages. Identify where most responses align, while noting any dimensions that lag behind or are significantly more advanced.

Stage-by-stage assessment matrix

Use the matrix below to assess your organization across six key maturity dimensions. Focus on identifying the stage where most of your responses align.

Maturity dimension	Stage 0 Fragmented and reactive	Stage 1 Standardized and reliable	Stage 2 Scaled and governed	Stage 3 Trusted and contextual	Stage 4 Unified and interoperable
Data quality	Inconsistent and difficult to trust	Reliable within key teams	Trusted across the organization	Trusted and contextualized for AI	Trusted across platforms and AI systems
Governance	Minimal and reactive	Emerging standards	Standardized across teams	Machine-readable and AI-ready	Governance travels with the data
Ownership	Unclear or inconsistent	Defined within key teams	Clear organizational ownership	Ownership supports AI workflows	Ownership spans systems and platforms
Cost and operational efficiency	Limited visibility into data and compute costs	Cost visibility established	Improved operational efficiency and cost control	Optimized compute and AI workloads	Continuous optimization at enterprise scale
Context	Limited documentation	Basic documented context	Shared business context	Semantic, machine-readable context	Unified context across platforms
Data architecture and interoperability	Fragmented, siloed architecture	Centralized data foundation	Governed enterprise architecture	Open, standards-based foundation	Interoperable, cross-platform infrastructure

Interpreting your results

Mostly stage 0
Focus on building trusted data foundations through standardized development practices, testing, documentation, and governance.

Mostly stage 1
Expand trusted practices beyond individual teams by establishing shared governance, ownership, and quality standards.

Mostly stage 2
Extend trusted data into trusted context by introducing semantic consistency, machine-readable governance, and AI-ready capabilities.

Mostly stage 3
Prepare for autonomous AI by enabling interoperability, governance that travels with the data, and cross-platform operations.

Mostly stage 4
Continue optimizing autonomous AI systems while strengthening governance, interoperability, and organizational oversight.

Most organizations will find their capabilities span multiple stages. Rather than focusing on isolated strengths or weaknesses, identify the stage that best reflects your overall operating model and prioritize the capabilities that will have the greatest impact on your progression to the next stage.

Next steps

Your assessment is a starting point, not an endpoint. Use the results to align stakeholders around your organization's current capabilities and define the next phase of your AI maturity journey.

1. Align stakeholders around current capabilities, gaps, and priorities
2. Identify the capabilities required to reach the next stage
3. Build a roadmap for trusted AI systems and autonomous agents
4. Explore how dbt products and capabilities can help accelerate your progression through each stage of maturity
5. Review your AI readiness with a dbt expert to validate priorities and define your next steps
6. Revisit the assessment periodically as your AI initiatives mature

The path to trusted AI and agents

The ability to scale AI with trust, governance, and control is becoming a defining competitive advantage.

The path to trusted AI and agents isn't about preparing for a single technology or model. It's about building the foundation that enables organizations to scale AI with confidence as it continues to evolve. Ultimately, it's a path to organizational resilience.

The models will change. The tools will evolve. Organizations that invest in these capabilities today will be best positioned to innovate, compete, and lead — ready for the next generation of AI systems and agents and the opportunities they'll create.

Key takeaways

- Assess your organization's current AI maturity
- Identify the capabilities needed to reach the next stage
- Build the trusted data, governance, and context required to scale AI with confidence
- Review your AI readiness with a dbt expert

Fivetran + dbt Labs