



Survey Report

# Data, AI & Analytics Trends Across Organizations in 2026

**Strategy** |  **CIODIVE**

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## Executive Summary

Large enterprises have invested heavily in modernizing analytics and preparing for AI at scale. Yet the landscape that emerges from this survey is one defined by fragmentation, dependency on inconsistent semantic layers, and persistent gaps in governance and observability.

Organizations are actively experimenting with solutions such as data virtualization, independent semantic layers, and custom-built tools. Still, satisfaction remains moderate at best. Leaders understand the path forward must include semantic consistency, governed AI, and portable data foundations. But the execution gap is wide.

The report that follows provides an evidence-based narrative of how enterprises are adapting, where they are struggling, and where the next phase of analytics and AI maturity will occur.



## Top Takeaways

### Fragmentation Remains the Default State of Enterprise Data

99%

Almost all leaders struggle with defining consistent business metrics across tools and departments.

This is not a tooling issue alone. It is a structural challenge rooted in decades of siloed systems, embedded logic inside BI platforms, and a lack of unified ownership. The result is a persistent baseline of semantic drift that undermines trust, slows decision-making, and blocks AI progress.

### Acceleration Has Exposed the Weakness of Existing Data Foundations

87%

Enterprises are optimistic about AI, yet 87% demand visibility into how AI uses data.

This reflects a growing tension: organizations want AI-driven analytics, but the underlying data is too inconsistent, too opaque, and too distributed to support explainable outcomes. AI has become the stress test revealing gaps in governance, provenance, and semantic alignment.

### Time Spent on Data Prep Signals a Maturity and Efficiency Gap

80%

Nearly 80% of data teams spend more than half their time preparing data rather than generating insights.

Fragmentation prevents automation, semantic governance, and reusable definitions, leaving teams stuck in continuous reconciliation. This “prep tax” limits innovation capacity and is one of the clearest indicators that enterprises are operating below their potential AI maturity.

### Independence and Portability Are Becoming Strategic Priorities

Across the next 3–5 years, leaders overwhelmingly prioritize:

**92%:** scalability across sources

**83%:** data and metric portability

**82%:** AI governance and observability

This reflects a decisive shift: enterprises want architectural freedom, not vendor-defined logic. The semantic layer is increasingly viewed as the anchor required to ensure consistent business meaning across warehouses, BI tools, and emerging AI systems.

## Methodology & Respondent Profile

Strategy and CIO Dive's Studio surveyed 100 senior data and technology leaders from global enterprises in industries including financial services, retail, technology, manufacturing, and healthcare. All respondents hold leadership roles such as CIO, CDO, CTO, VP of AI/Analytics, or Director of Enterprise IT.

100% of respondents represent companies with **more than 5,000 employees and \$2B+ revenue.**

The findings represent a statistically meaningful view of how modern enterprises navigate data standardization, analytics modernization, and the early stages of AI operationalization.



# The Scope of Fragmentation

Fragmentation isn't just having "some messy data" at the edges. It's the operating system most enterprises are still running on. Nearly every organization (99%) in the study reports that defining metrics separately in each BI or analytics tool is a challenge, and almost half say their biggest obstacles are multiple data sources (49%) and weak governance (38%), not a lack of technology.

In practice, this means the same core questions ("What is revenue?", "Who counts as an active customer?") are re-implemented, re-interpreted, and re-argued across functions and platforms.

The impact is cumulative: semantic drift across tools, duplicated logic buried in dashboards, and data teams forced into permanent clean-up mode instead of enabling the business. The real scope of fragmentation, then, isn't just technical complexity; it's the quiet normalization of inconsistent truth across the enterprise.



## Metric Inconsistency: A Near-Universal Failure Mode

Nearly every enterprise surveyed struggles with metric definition consistency. These challenges vary in intensity, but their ubiquity signals a systemic failure in semantic governance.

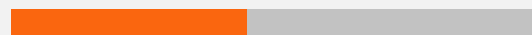
**How challenging is it to define business metrics consistently across analytics tools?**



Extremely challenging: 2%



Very challenging: 14%

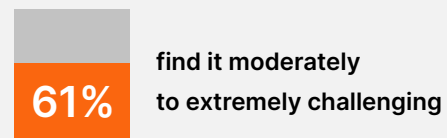


Moderately challenging: 45%



Slightly challenging: 38%

**Total = 99%** struggle with metric definition consistency.

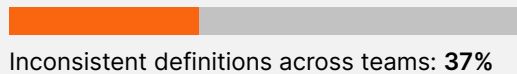
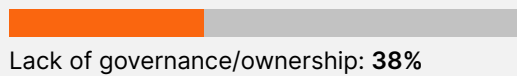
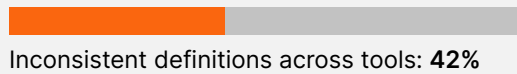


**Key insight:** When nearly all respondents cite the same challenge, it points not to isolated issues but to structural deficiencies embedded in organizational tooling, process, and ownership.

## The Hidden Organizational Costs of Fragmentation






Fragmentation emerges not from technology gaps but from many small inconsistencies that compound across the organization. The result is slower decisions, higher manual effort, and rising risk.

**Top obstacles to maintaining consistent business definitions across the organization include:**



This pattern mirrors “distributed failure models.” Fragmentation does not stem from a single weak point but from dozens of minor inconsistencies that compound across functions, teams, and tools.

**Fragmentation introduces:**

-  **Slower decision cycles**
-  **Conflicting KPIs**
-  **Manual reconciliation overhead**
-  **Risk to AI training quality**
-  **Loss of trust in dashboards**

Enterprises cannot scale AI maturity, predictive analytics, or self-service models until they address this foundation.

**The cost of semantic drift:** Even small variations in metric definitions (customer, revenue, active user, etc.) introduce decay that cascades into planning, forecasting, and AI outputs.



# Standardization Approaches: Current Methods and Solutions

Most large enterprises have tried almost every play in the book to standardize metrics. Data virtualization, all-in-one vendor platforms, custom builds, and even independent semantic layers are all in circulation, yet satisfaction with each remains firmly in the “it kind of helps but doesn’t fix it” zone.

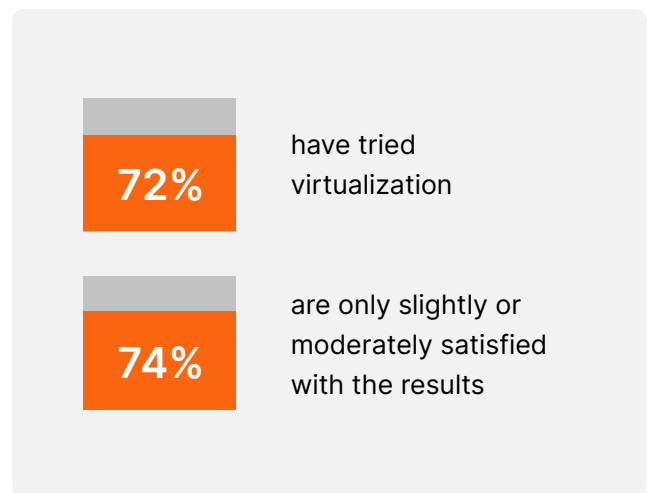
The common thread is that most of these approaches were designed to move or expose data, not to create a durable, shared layer of meaning that survives new tools, clouds, and reorganizations. Vendor-tied semantic layers age with the platform they’re attached to, custom builds become brittle and expensive to maintain, and virtualization often just adds a sixth “virtual” database on top of five existing ones.

**Treating standardization as a tactical feature of another system, rather than as an independent, long-lived asset, is exactly why those efforts keep falling short.**

The lesson is clear: enterprises have proven they’re willing to invest in standardization, but often treat it as yet another feature of a system, instead of an independent asset. Viewing data standardization as a short-term, tactical objective rather than a long-term investment is exactly why those efforts continue to fall short.

## Data Virtualization

A widely adopted but limited approach, data virtualization improves access but fails to resolve the underlying semantic inconsistencies that drive fragmentation.



**What this means:** Virtualization solves access, not definition. It is a connectivity layer, not a semantic layer.

## Independent Semantic Layers

Independent semantic layers address the top three priorities for data and analytics: long-term scalability to new data sources and tools (identified by 92% of respondents as a key factor), portability of data estates across platforms (83%), and AI governance and observability (82%). To that end, enterprises are increasingly exploring independent semantic layers.

**Over two-thirds (68%)** currently use (37%) or are piloting (31%) an independent semantic layer.

**This marks a tipping point:** Semantic layers have moved from architectural theory to mainstream adoption, but implementation inconsistencies limit the value realized. This represents an opportunity for improvement.



## Custom and In-House Tools

Custom-built solutions provide short-term control but long-term fragility, as their complexity limits scalability and satisfaction.



46% have tried custom or in-house tools



72% are only moderately satisfied

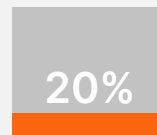


Only 4% report complete satisfaction

**Insight:** Custom solutions produce bespoke success but poor interoperability. Complexity creates vulnerability.

## Vendor Platforms

All-in-one vendor platforms offer convenience at the cost of flexibility, with low adoption and low satisfaction rates.



adoption rate



of moderate and low satisfaction

**What this means:** Vendor lock-in and embedded logic create rigidity. Enterprises recognize that portability, not consolidation, is the long-term priority.

## Capabilities, Cost Pressures, and the Productivity Gap

Enterprises aren't just wrestling with complexity; they're paying dearly for it. The survey shows that the most valuable capabilities for AI and analytics success are not the flashiest (like advanced modeling or real-time dashboards) but the foundational ones: unified definitions, strong governance, and predictable cost structures. Yet these are precisely the areas where teams feel the most strain.

Nearly 80% of data teams spend more than half their time preparing data instead of generating insights. This productivity gap reflects deep systemic inefficiencies rather than poor individual performance. Meanwhile, unpredictable vendor-specific compute pricing forces organizations into reactive budgeting and compromises long-term strategy.

Together, these pressures reveal a simple truth: The productivity and cost challenges enterprises face are not byproducts. They are the natural outcome of fragmented tools and inconsistent semantics. Fix the foundation, and both costs and productivity should move in the right direction.



## Capabilities Leaders Prioritize

**Acknowledging the path to maturity:** Data and IT leaders have come to view data consistency and transparency as true enablers of AI and analytics performance. AI success is only as strong as the semantic layer beneath it.

### Keys to successful AI and analytics implementation:

- Unified business definitions: **70%**
- Comprehensive governance: **50%**
- AI readiness, scalable performance, cross-platform compatibility: **<50%**

## Cost Predictability Over Cost Reduction

Leaders aren't struggling with runaway query costs. They're struggling with volatility. Overwhelming demand for predictable pricing underscores a shift toward financial stability over optimization.

**87%**

say warehouse query costs have only mild or moderate impact

**99%**

want predictable per-seat pricing

## The Data Prep Bottleneck

The overwhelming share of time spent on data preparation reflects a structural maturity gap in modern data environments, signaling where automation and AI can unlock the greatest returns.

**79%**

say more than half their team's time is spent on data prep

When data teams spend over half their time on data prep, that's time they're not spending on insight generation.

**Key insight:** The longer teams remain in manual prep loops, the smaller the window for meaningful insight. Data prep is not a bad thing. It's crucial. But it can happen faster.



## AI Implementation: Confidence, Constraints, and Governance Gaps

Despite the momentum behind AI adoption, enterprise confidence is far more fragile than surface-level numbers imply. While nearly all leaders report some degree of trust in AI-powered analytics, only a minority feel extremely confident, and an overwhelming **87% demand far greater transparency into how AI uses and interprets their data.**

This tension reveals an emerging governance gap. While organizations want AI to accelerate decisions, they lack the semantic and technical observability

needed to understand when, why, or how those decisions are made. The result is a paradoxical state where AI is widely deployed but rarely trusted at scale. Leaders increasingly recognize that without clear lineage, consistent semantic definitions, and visibility into model behavior, AI systems amplify existing data problems rather than solve them.

True AI maturity begins not with more models but with the governance frameworks that make AI explainable, auditable, and worthy of enterprise trust.



## Project Challenges

AI projects are stalling not because of missing talent or tools, but because core architectural and organizational foundations remain uneven and fragmented.

### Top challenges facing AI implementation:



Complex infrastructure: 61%



AI projects take too long: 53%



Data quality issues: 39%



Too many silos: 35%

**Key insight:** Enterprises understand their bottlenecks but lack the structural alignment to resolve them.



## Observability and the Trust Gap

Enterprises are signaling that the next phase of AI maturity hinges on visibility. Without traceability, even accurate AI outputs cannot be trusted.

**87%** want full visibility into how AI systems use data.

**This is a critical early signal:** AI adoption is not limited solely by accuracy concerns. It is constrained by the lack of observability and provenance transparency.

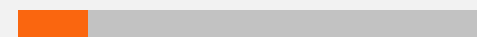
## Human-AI Oversight

Organizations envision an AI future that amplifies human judgment rather than replaces it. This reflects a deliberate preference for augmented, not autonomous, intelligence.

### In their long-term vision for AI, respondents:



Foresee AI embedded in processes with human oversight: 79%



Want humans to lead with AI assist: 15%



Anticipate autonomous AI-driven decisions: 4%

**What it means:** Enterprises still see AI as an accelerator, not an autonomous engine.

## Looking Ahead: The Enterprise Roadmap

As enterprises look toward the next three to five years, a clear strategic recalibration is underway: The future of analytics and AI will be defined not by aggressive tooling expansion, but by independence, transparency, and architectural resilience. Leaders overwhelmingly prioritize semantic layer portability, robust governance, and unified business definitions over cost optimization or even raw performance. This signals a shift from speed-at-all-costs to sustainably governed intelligence.

**The future of analytics and AI will be defined not by aggressive tooling expansion, but by independence, transparency, and architectural resilience.**

AI is expected to play a deeply embedded role across workflows, yet always with human oversight and semantic guardrails shaping its actions. The emerging roadmap envisions ecosystems where data meaning travels consistently across every tool, where AI is observable and explainable by design, and where governance becomes a first-order capability rather than an afterthought. In this future, enterprises don't just modernize infrastructure; they cultivate the disciplined foundations required for trustworthy, interoperable, and enduring AI-driven decision-making.



## Portability, Scalability, Vendor Independence

Enterprises are reorganizing their data strategies around adaptability, prioritizing architectures that can absorb new tools and data sources without locking them into rigid ecosystems.

### Top data strategy priorities

for the next 3–5 years:

Scalability to new sources and tools: **92%**

Data portability: **83%**

AI governance and observability: **82%**

## Planned Investments

The next investment cycle reflects a decisive pivot toward AI-ready foundations, with leaders funding the infrastructure layers that make automation, governance, and interoperability sustainable at scale.

### Survey takers' near-term investment priorities include:

Cloud modernization: **87%**

AI-powered analytics: **83%**

Data governance + semantic layer initiatives: **64%**

## The Semantic Layer Mandate

Enterprises see the semantic layer as the foundation of the next era of analytics. **The message is clear:** semantic independence = strategic independence.

**Key trend:** This signals a shift from isolated tooling to coherent architectural planning. Leaders want to build AI-ready infrastructure by anchoring it in scalable cloud platforms and ensuring trust and interoperability through governed data layers.

### Organizations view the following as the biggest benefits of semantic layer independence:



Consistency of metrics across platforms and tools: **79%**



Ability to switch BI tools: **66%**



Long-term ownership of logic: **57%**



Ability to more easily switch warehouses: **49%**



## Conclusion: The Unification Imperative

This survey makes one thing unmistakably clear: Unification is no longer a technical preference—it's an operational imperative. Large enterprises have already invested in clouds, warehouses, BI tools, and AI pilots. But without a shared semantic backbone, those investments continue to fragment rather than compound.

The data shows a system under strain: almost universal difficulty aligning metrics, heavy reliance on manual prep, only partial satisfaction with current standardization tools, and a strong desire for transparency into how AI uses data.

At the same time, leaders are converging on a new operating model:

- Independent semantic layers to decouple meaning from vendors.
- Governance and observability as core capabilities, not check-the-box controls.
- AI embedded broadly, but tethered to human judgment and well-defined business logic.

The path forward is not about adding yet another platform. It's about elevating semantics, governance, and observability to the top tier in the architecture so every tool, model, and decision is powered by the same trusted foundation.

Enterprises that make that shift will not just modernize their data stack; they will unlock a durable advantage in how quickly and confidently they can turn data into decisions.



The mandate is clear:

**Unify the data.  
Govern the AI.  
Prepare the enterprise.**



# Strategy<sup>₿</sup>

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