

2025 Market Study: Modern Data Architecture in the AI Era

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Executive Summary

In March 2025, Radiant and Unisphere Research collaborated on this comprehensive survey and analysis of 259 qualified enterprise data professionals, aiming to uncover how emerging artificial intelligence (AI) technologies are shaping modern data architecture trends and adoption. AI-related technologies have not been added to existing technology portfolios but have reorganized how organizations think about modern enterprise data architecture.

The evolving landscape of enterprise data architecture has shifted in the past two years with the arrival of AI capabilities, fundamentally changing how organizations evaluate, justify, and implement their data strategies. With 85.3% of enterprises securing budgets and 82.6% planning implementation by the end of 2025, data architecture modernization has shifted from a competitive advantage to a critical business necessity.

The AI-Ready Data Architecture Approach

Generative AI (GenAI) with Large Language Models (LLM), including Retrieval Augmented Systems (RAG) and knowledge graphs (KG), has garnered the highest organizational commitment, capturing 57.9% of research attention, 51.7% understanding confidence, and 62.9% conviction of strategic value over the next five years. This adoption pattern represents an acceleration compared to traditional enterprise technology cycles, validated by concrete organizational action: approved budgets increased by 16.8 percentage points while uncertainty declined substantially. Organizations have progressed beyond experimental approaches to establish strategic commitment around AI-enabling capabilities.

Budget allocation data shows a notable shift in implementation strategy within the enterprise. Organizations have shifted from large-scale enterprise overhauls to tactical, use-case-driven implementations, with 49.8% now allocating under \$100k compared to just 11.4% in 2023, while investments over \$1M decreased by 16.9 percentage points. This transformation indicates that organizations are pursuing focused AI implementations through integrated architecture components rather than comprehensive system replacements.

Our survey framework analysis shows that organizations are building integrated AI-enabling infrastructure stacks rather than pursuing individual technologies. The Data Lakehouse architecture retains a strong position at 33.6% strategic value as the flexible storage foundation, while Data Fabric offers essential unified access capabilities at 28.2% strategic value. Additionally, Semantic Layer & Search technologies receive recognition with 20.5% strategic value despite being newly measured. These technologies succeed as complementary components that collectively enable comprehensive AI implementations requiring diverse data integration, contextual understanding, and flexible processing capabilities.

Strategic Business Evolution and Market Dynamics

The business justification landscape has evolved significantly, with organizations shifting from technical optimization needs to strategic transformation imperatives. AI and GenAI use case adoption leads business drivers at 49.4%, while newly measured drivers such as improving data freshness and accessibility (40.2%) and driving efficiency with data products (36.3%) indicate sophisticated organizational thinking about data as strategic assets. Drivers for data performance improvements have declined, with real-time analytics dropping from 49.5% to 37.1%, revealing that speed or latency no longer presents compelling business cases for major architectural investments.

The shift to smaller, focused budgets validates this evolution of the business case. It reflects organizational recognition that competitive advantage comes from intelligent automation and targeted implementations rather than comprehensive system replacements. This approach allows organizations to demonstrate rapid value realization while progressing toward integrated AI-enabling architectures through incremental, strategic deployments.

Strategic Implications

The concentrated implementation timeline creates synchronized market transformation, with 43.6% of organizations targeting Q3-Q4 2025 implementation and 82.6% planning deployment by year-end. The 24.7% of organizations that began implementation in 2024 have gained early positioning advantages, while the majority are gearing up for execution in the second half of 2025. This sets up a competitive inflection point where strategic decisions made in the coming months will shape long-term market positioning.

This analysis equips data leaders with valuable strategic insights to manage this transformation. It outlines market dynamics, assesses organizational readiness requirements, and examines implementation strategies that turn these insights into practical actions within the fast-paced timelines that characterize the current competitive environment.

About Denodo



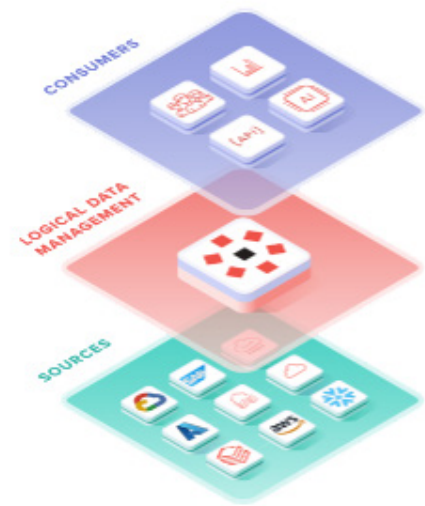
Supercharging AI-Ready Data Architectures: How The Denodo Platform Accelerates GenAI and Data Democratization

As organizations push to meet the demands of an AI-first world, one thing is clear: the old approach of massive, all-at-once data overhauls is on the way out. Instead, we're seeing a shift toward smarter, faster, more targeted implementations. In fact, as this report shows, 82.6% of organizations plan to deploy their modern data architecture strategies by the end of 2025.

To move quickly and get results, organizations are combining technologies like data lakehouses, data fabric, and semantic layers. Together, these components help teams lay down the technical groundwork they need to deliver AI-ready data—data that's accessible, well-governed, and meaningful—without getting bogged down in lengthy infrastructure projects.

This is where Denodo plays a key role.

Denodo brings these pieces together into a single, logical data layer. It virtualizes data access across all environments, applies rich semantic context, and enforces data governance policies—all without moving or replicating the data. That means teams get secure, real-time access to trusted data right when they need it. Whether it's for accelerating GenAI pilots or rolling out self-service tools, the Denodo Platform helps organizations meet tight transformation timelines and keep pace with a fast-moving market.



Accelerating GenAI Initiatives with Trusted, Real-Time Data

One of the biggest hurdles in putting GenAI to work is latency and complexity around data access. AI models need current, reliable, and well-contextualized data, not outdated extracts or scattered data copies that raise governance concerns.

The Denodo Platform makes this possible by enabling:

- ▶ **AI-driven query processing**, where natural language questions are translated into metadata-aware SQL queries that pull real-time answers
- ▶ **Semantic unification**, so GenAI systems can understand not just the data, but the relationships and meaning behind it
- ▶ **Federated access**, which eliminates the need for physical data movement by querying the data at its source

Take Alexforbes, for example—a major South African financial services provider. The company was running into performance issues with batch-loaded vector databases and was also concerned about losing trust in its data due to unnecessary copies. By implementing the Denodo Platform as a data fabric, Alexforbes enabled real-time, governed access across platforms and simplified how its teams interact with data. Natural language querying opened up AI capabilities to more users, and the solution scaled efficiently across all nine countries where the business operates.

Enabling True Self-Service and Data Democratization

Even with a modern data infrastructure in place, many organizations still struggle to get data into the hands of business users. Clunky tools, limited search capabilities, and a reliance on IT for access are slowing down progress.

The Denodo Platform makes self-service real:

- ▶ It powers data marketplaces in which governed, curated data products can be easily found and used by non-technical users.
- ▶ It enables personalized access, giving everyone from analysts to executives tailored views of the data they need.
- ▶ And it supports on-demand integration, so users always get the freshest data—without waiting on batch processes or help from IT.

This kind of democratized access is what drives real agility. Whether for a data scientist fine-tuning an AI model or a business analyst building dashboards, the Denodo Platform gives them what they need—securely, and at scale.

Why Denodo? Meeting the Moment for AI, Self-Service, and Governance

Denodo stands out by:

- ▶ Bringing together all data from across the organization—cloud, SaaS, legacy—**without the cost or complexity of replication**
- ▶ Providing **consistent governance and semantics**, so both AI models and business users can trust the data they rely on
- ▶ Helping organization to stay flexible with **hybrid and multi-cloud architectures**, avoiding vendor lock-in and long-term replatforming risks

With so many organizations moving in lockstep toward AI-enabled architectures in 2025, the pressure is on to move fast and get it right. Denodo helps organizations meet that moment with a practical, scalable approach—speeding up GenAI initiatives, unlocking self-service at scale, and delivering trusted, real-time data across the business.

For more information, please visit www.denodo.com.