

# 2025 Market Study: Modern Data Architecture in the AI Era

## Facts & Figures:

- Business Value
- Future Commitments
- Use Cases
- Data Source Requirements

## Result:

Profit, Value - ROI

Successful implementation

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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 only 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.

## How GenAI and LLM are Disrupting Data Architecture Trends in 2025

The market positioning of GenAI and LLMs demonstrates a technology and data management architecture that has gained remarkable organizational confidence, with 39.0% of enterprises actively participating and 33.6% currently researching implementation strategies. This level of engagement translates into a sophisticated understanding, as 40.9% express conceptual clarity about GenAI capabilities and 22.8% demonstrate detailed comprehension. Most notably, positive business sentiment prevails, with 36.7% viewing GenAI as valuable for business automation and efficiency, while only 10.8% voice concerns regarding hallucinations and security risks.

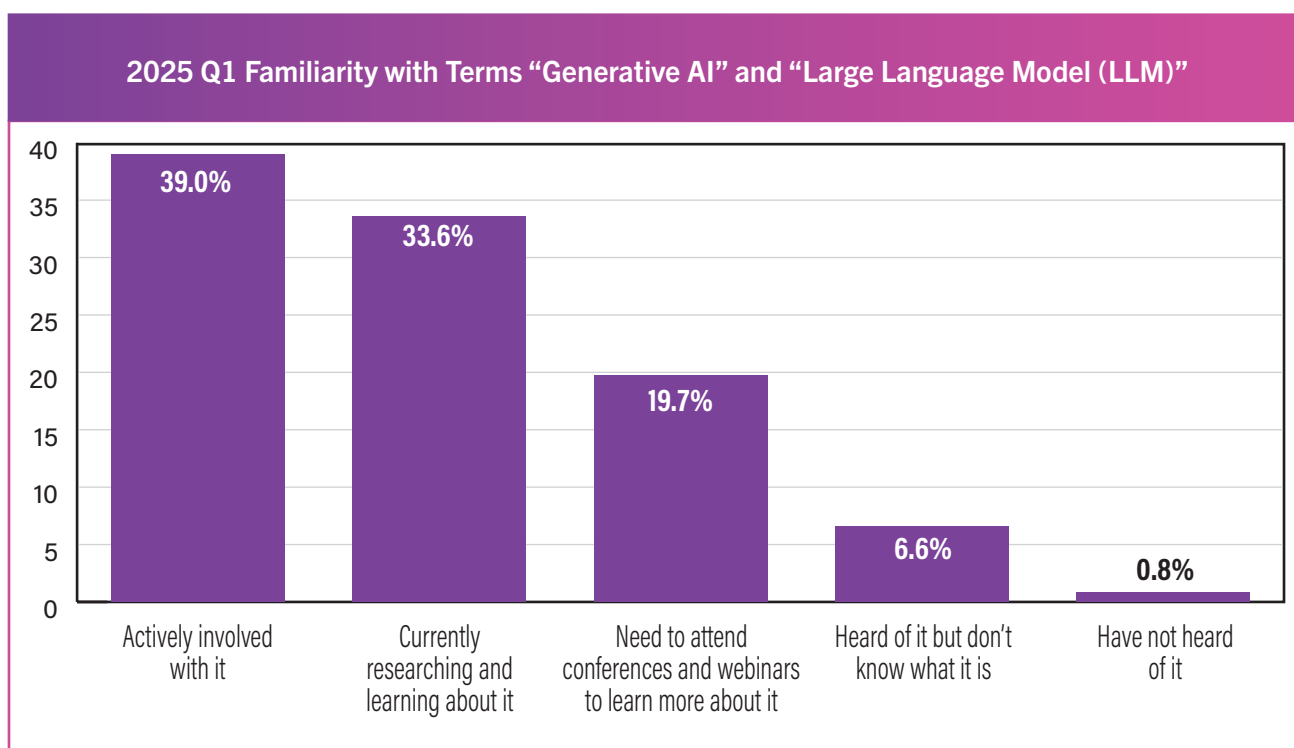


Figure 1. What is your familiarity with the terms “Generative AI” and “Large Language Model (LLM)”?

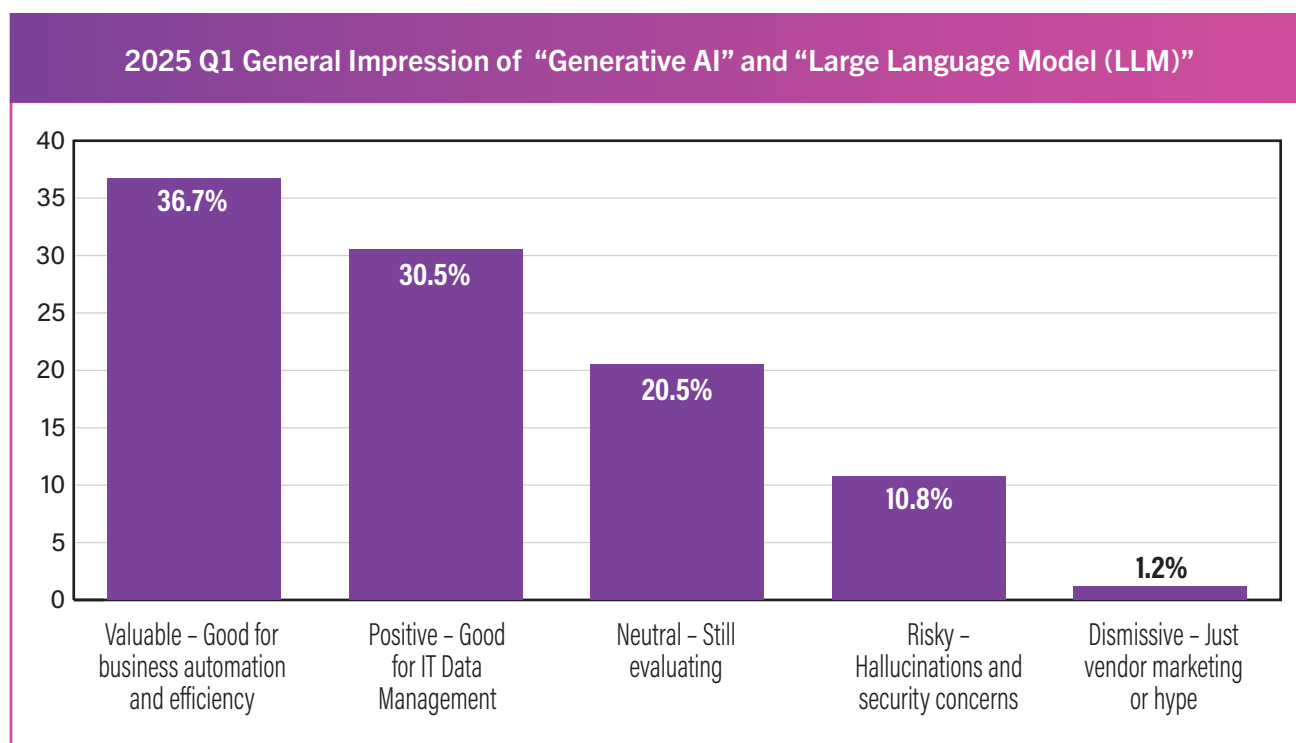


Figure 2. What is your general impression of the “GenAI and LLMs”?

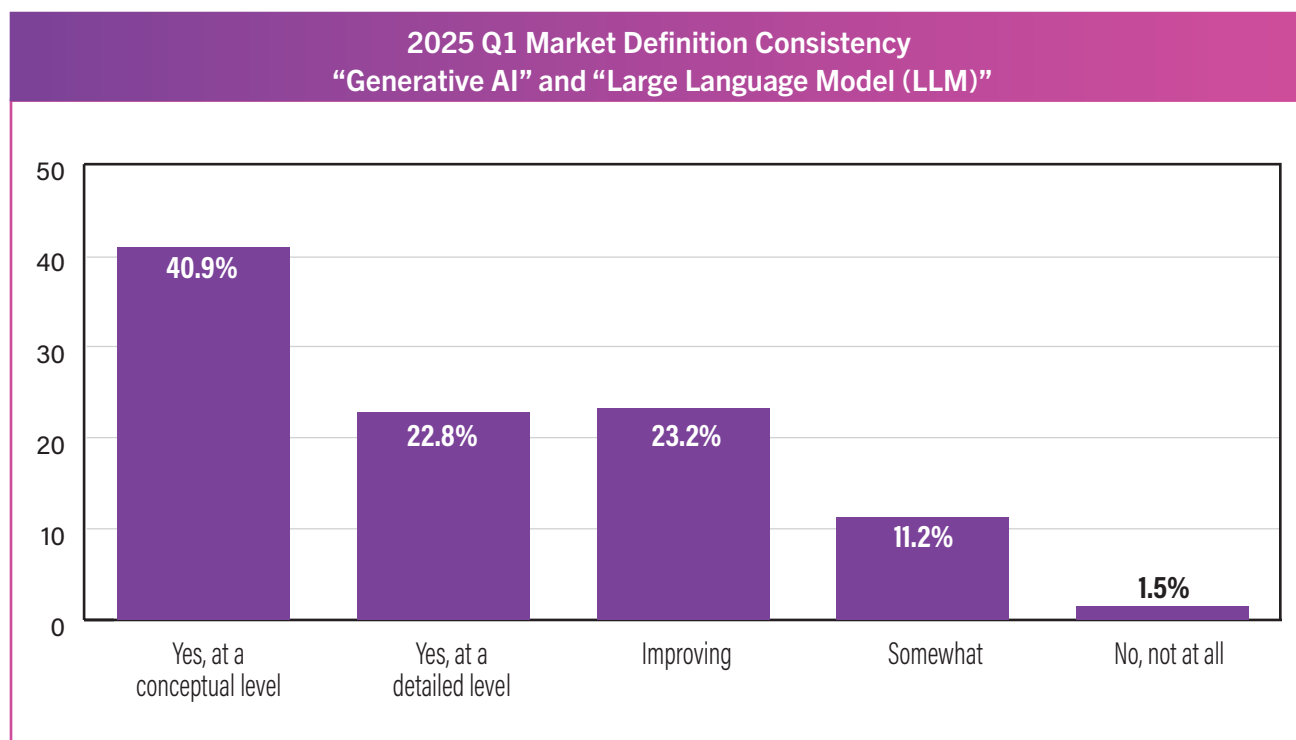


Figure 3. Do you think the definitions of “GenAI” and “LLM” are well understood and consistent in the industry?



This strong market confidence directly correlates with realistic implementation planning. Organizations demonstrate a mature awareness of the complexities of GenAI, with only 7.7% being unfamiliar with implementation challenges—a remarkably low percentage that indicates widespread practical knowledge. The top obstacles reflect a sophisticated understanding rather than fundamental uncertainty: LLM accuracy and hallucination risks concern 36.7% of organizations, implementation costs affect 35.5%, and enterprise data integration challenges impact 35.1%.

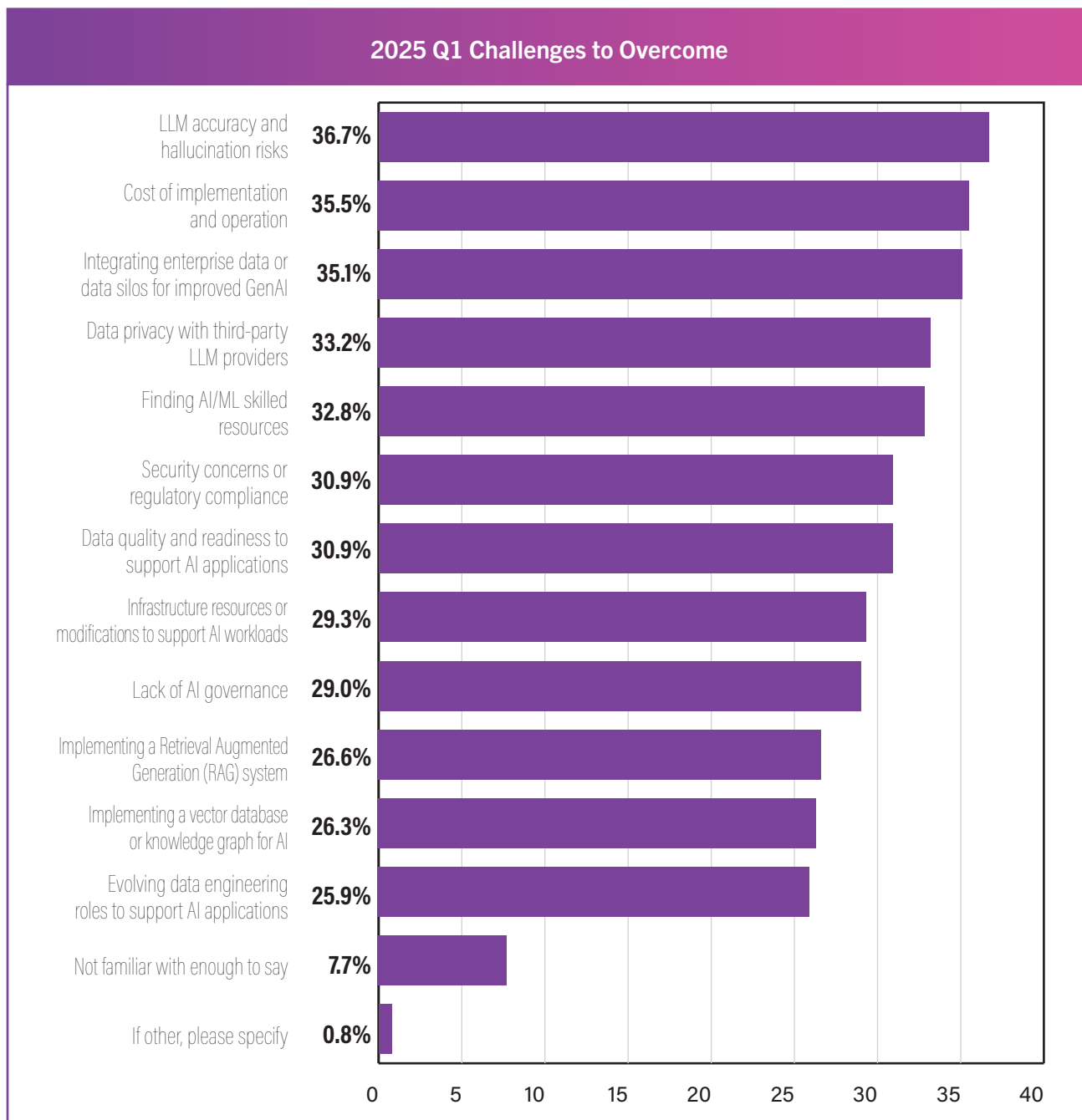


Figure 4. What do you think are the challenges that a GenAI and LLMs initiative will have to overcome? (Click all that apply)

The strategic value proposition becomes evident when assessing expected business outcomes. Organizations foresee comprehensive transformation benefits, driven by enhanced decision-making through data insights at 39.8% and increased AI support for business and IT roles at 39.4%. The remaining outcomes are tightly clustered between 29.0% and 36.7%, indicating that organizations perceive GenAI as facilitating broad business improvement rather than addressing isolated issues.

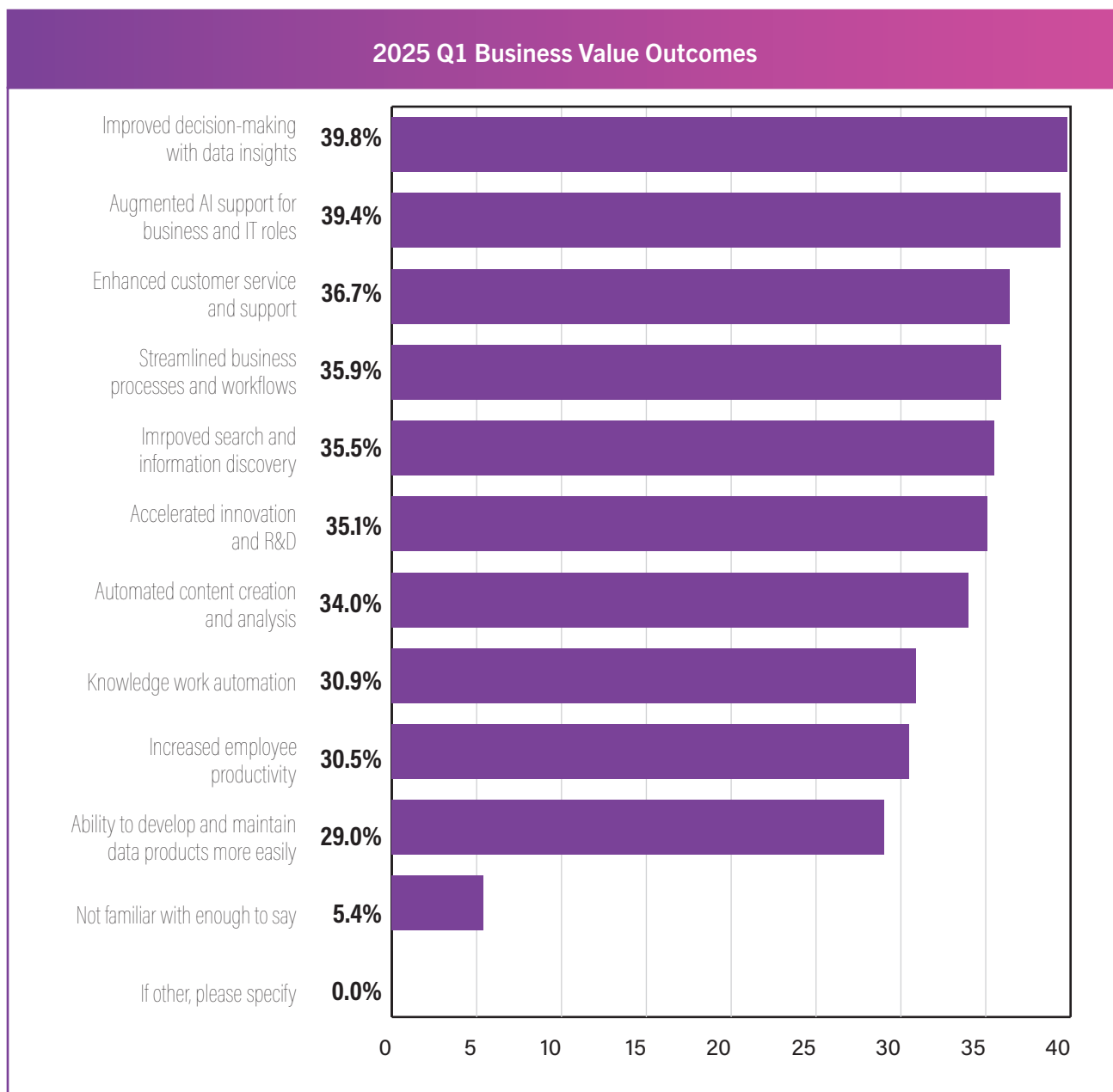


Figure 5. What do you believe are the business value outcomes of a GenAI and LLM initiative? (Click all that apply)



Critical correlations reveal value-driven motivation for overcoming implementation barriers. Organizations citing data integration challenges (35.1%) align with those expecting improved decision-making outcomes (39.8%), demonstrating that addressing data silos directly enables AI-powered insights. Similarly, concerns about finding AI/ML skilled resources (32.8%) correspond with expectations for enhanced AI support (39.4%), indicating that organizations recognize that investing in skills creates a sustainable competitive advantage.

The concern regarding cost implementation (35.5%) appears justified in light of the anticipated outcomes related to customer service enhancement (36.7%), process streamlining (35.9%), and innovation acceleration (35.1%). This alignment of costs and benefits suggests that organizations see GenAI as a strategic infrastructure investment rather than a tactical technology deployment.

For data leaders, these patterns highlight a market where perception confidence leads to implementation commitment. The alignment of high active involvement (39.0%), strong business value recognition (36.7%), and realistic awareness of obstacles (92.3% familiar with challenges) creates favorable conditions for strategic GenAI initiatives. Organizations can transition from evaluation to implementation with confidence that experience confirms expectations rather than leads to disappointment.

## Enterprise Data Architecture Trends and Adoption

### A Strategic Survey Framework

Modern data architecture decision-making has evolved far beyond simple technology selection; it has become one of the most complex strategic undertakings organizations face. This report introduces a comprehensive six-dimensional framework that reveals how enterprises evaluate, prioritize, and commit to data architecture investments.

The framework examines **Research Focus** (where organizations direct evaluation attention), **Understanding Confidence** (readiness to make informed implementation decisions), **Strategic Value Conviction** (long-term competitive positioning beliefs), **Business Case Drivers** (compelling transformation justifications), **Data Source Requirements** (underlying complexity that validates architectural necessity), and **Cloud Platform Context** (infrastructure portfolio management enabling strategic flexibility). Each dimension provides unique strategic intelligence, and understanding their interactions reveals the complete picture of how successful data architecture strategies develop and why certain technologies gain momentum while others stagnate. Conversely, notable gaps between dimensions can identify critical considerations regarding timing, preparation, data landscape maturity, and implementation approaches that determine the difference between successful transformation and costly false starts.

Data leaders can apply this framework to understand their organizational positioning, compare with broader market dynamics, and develop architectural strategies that integrate multiple considerations rather than merely following technology trends. This unique approach recognizes that a successful data architecture strategy requires an understanding of organizational dynamics, competitive positioning, business value creation, the realities of data complexity, and infrastructure constraints that span technical expertise and incorporate strategic thinking across multiple dimensions of enterprise decision-making.

### Research Focus: 2025 Organizational Attention Analysis

The 2025 Research Focus priorities reveal where organizations direct their architectural evaluation efforts and strategic attention. GenAI with LLMs has captured most of the organizational attention and research bandwidth, with 57.9% of companies actively evaluating this technology despite its recent emergence in the enterprise data architecture landscape. Traditional architecture research is experiencing an attention shift, with cloud data warehousing evaluation declining from 53.3% to 39.0% and real-time analytics research dropping from 51.4% to 38.6%.

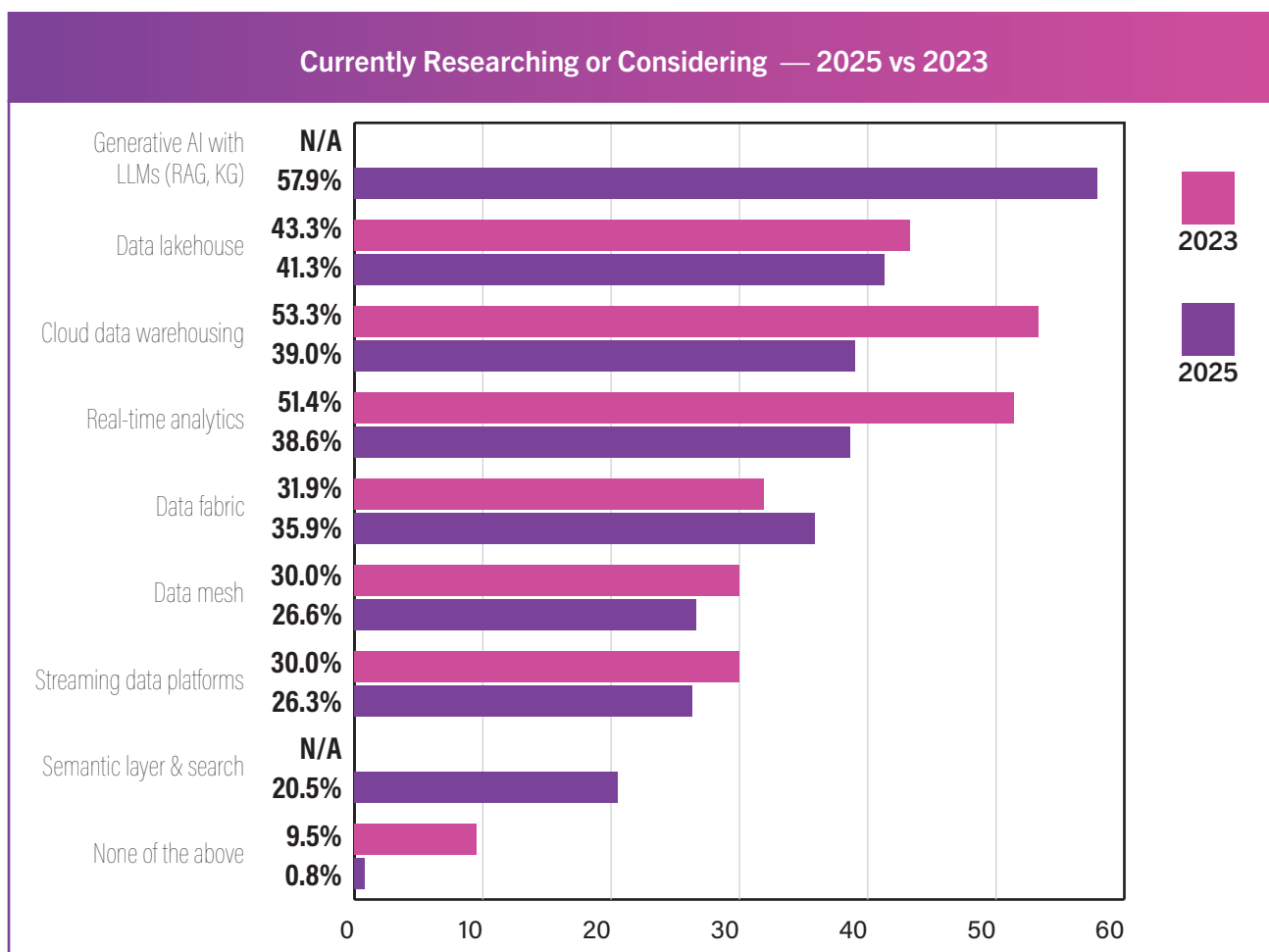


Figure 6. Which of the following data architectures is your company currently researching or considering? (Click all that apply)

**Radiant Insight for data leaders:** The concentration of research attention around AI-enabling data architectures shows that organizations are not simply adding new technologies to their evaluation lists but are fundamentally reallocating their research resources toward architectures that support artificial intelligence capabilities.

### **Research Priority Analysis: Understanding Organizational Focus Shifts**

These research patterns provide data leaders with critical intelligence about where the market is directing its evaluation efforts and strategic thinking. The overwhelming research focus on GenAI reflects organizational recognition of a fundamental architectural requirement rather than merely experimental interest. When nearly 60% of organizations actively research the same architecture and technology, this capability is recognized as essential infrastructure rather than optional innovation. This concentrated attention suggests that data leaders not currently evaluating AI-enabling architectures may risk falling behind in their strategic planning cycles.

The decline in research on established data architecture trends highlights important patterns of organizational maturation. The decrease in cloud data warehousing research from 53.3% to 39.0% likely indicates that many organizations have completed their evaluation phase and transitioned into implementation, while others have determined that these approaches are insufficient for their strategic needs. Similarly, the drop in real-time analytics research from 51.4% to 38.6% suggests that this capability is increasingly assessed as part of broader data architectural strategies rather than as a standalone research priority. Understanding these patterns helps data leaders recognize which technologies are moving from evaluation to implementation phase and which are being integrated into larger architectural considerations.

The emergence of the Semantic Layer and Search as an established research priority at 20.5% provides crucial strategic context. The introduction of this technology, alongside intensive GenAI research, suggests that organizations recognize that effective AI implementation requires supporting architectural components. The concurrent research focus on these technologies indicates that successful AI architectural strategies necessitate an integrated evaluation of multiple complementary capabilities rather than isolated technology assessments.

For data leaders, our research indicates that organizational focus has shifted toward integrated architectural thinking centered on AI enablement. The data suggests that companies are no longer researching individual architectural components in isolation but are instead evaluating how different technologies work together to create AI-capable data platforms. This shift encourages data leaders to restructure their evaluation approach and ensure that their data architecture research prioritizes technology integration for AI readiness rather than standalone capabilities. Organizations that continue to research modern data architectures without considering their role in AI-enabling strategies may conduct evaluations that become increasingly disconnected from broader market directions and organizational needs.

## Data Architecture Understanding and Business Value: 2025 Decision Confidence Analysis

The 2025 Understanding Confidence analysis and business value perceptions reveal a dramatic shift that directly impacts strategic decision-making readiness. GenAI with LLMs has achieved first-time understanding and business value recognition at 51.7%, reflecting remarkable knowledge maturation in an emerging technology category. Other modern data architecture trends have faced some confidence erosion, with cloud data warehousing declining from 55.0% to 40.9% and real-time analytics dropping precipitously from 53.0% to 29.7%. Understanding levels now establish clear adoption readiness tiers, with established architectures like Data Lakehouse maintaining stable confidence at 42.5%, while newer approaches such as Semantic Layer & Search achieve 20.1% understanding despite their recent market resurgence.

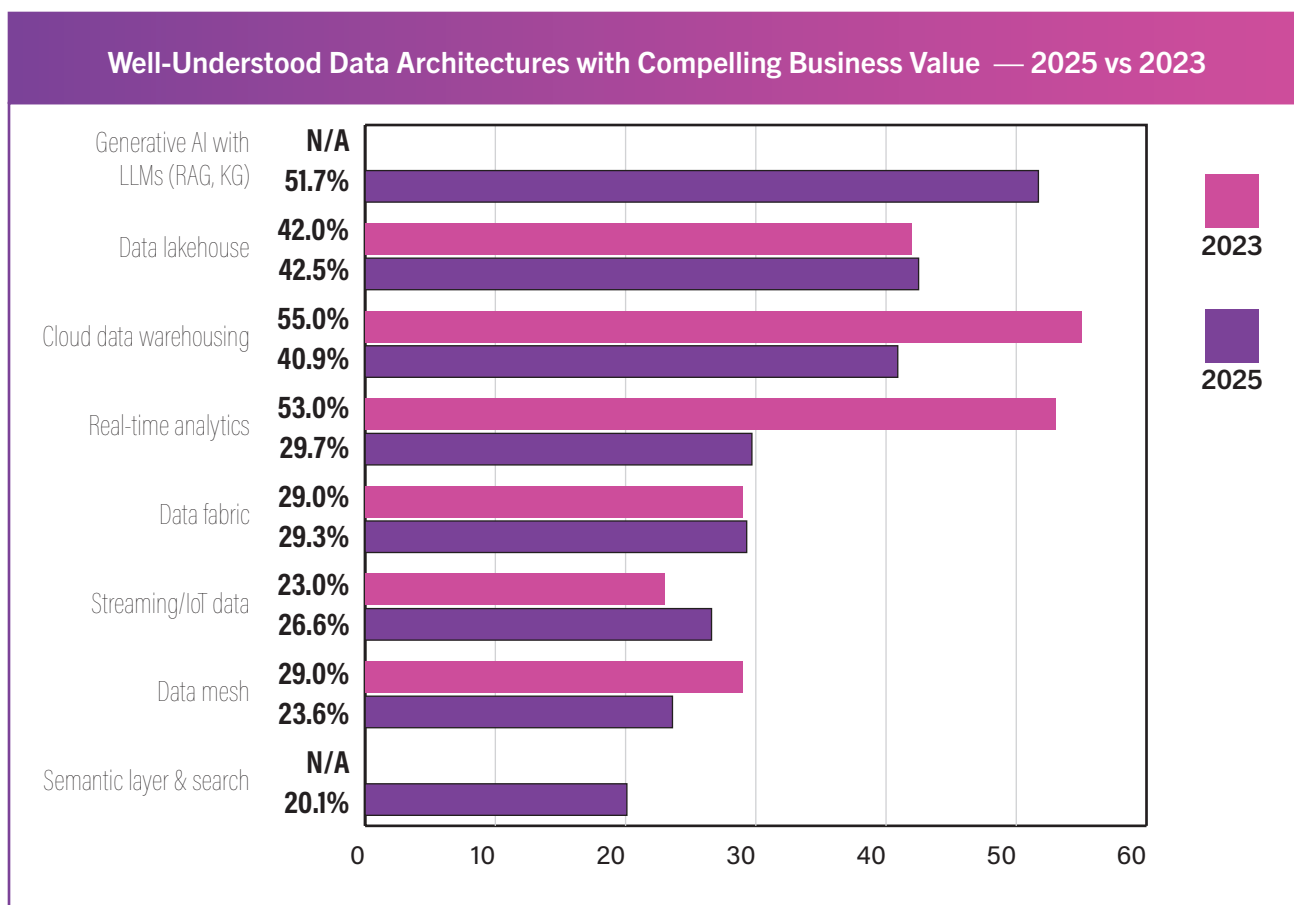


Figure 7. Which data architectures do you understand well, including its compelling business value? (Click all that apply)

**Radiant Insight for data leaders** is the confidence paradox: organizations actively research data architectures they do not yet understand enough to implement confidently. This creates a risky execution gap between exploration and adoption readiness that requires targeted knowledge development strategies.

### **Strategic Confidence Analysis: The Integrated AI Architecture Stack**

The evolution of confidence levels reveals how organizations are fundamentally reconceptualizing modern data architecture from individual technology decisions to integrated AI-enabling ecosystems. The rapid development of GenAI understanding to 51.7% showcases an acceleration of knowledge that has transformed how data leaders evaluate all architectural components. This confidence level, achieved in just two years, demonstrates that organizations have moved beyond experimental evaluation to cultivate a genuine understanding of AI's business applications and the necessary infrastructure for successful implementation.

The rebalancing of architecture value perception highlights GenAI's role as the organizing principle for modern data strategy. The decline of cloud data warehousing from 55.0% to 40.9% and the drop in real-time analytics from 53.0% to 29.7% indicate a fundamental recalibration in which organizations evaluate these architectures primarily based on their contribution to AI capabilities rather than their standalone benefits. This shift creates distinct evolutionary paths for traditional data architectures. "GenBI" is an example of cloud data warehousing evolving to AI-powered business intelligence capabilities. At the same time, real-time analytics faces questions regarding its independent value proposition with human involvement, while real-time AI systems can provide predictive insights from historical data patterns.

The emergence of an integrated AI-enabled data architecture stack fundamentally changes how data leaders should approach architecture, technology understanding, and adoption decisions. Data Lakehouse maintains a strong understanding at 42.5% because organizations recognize its role as the flexible, open-format storage foundation that AI applications require for diverse data types and formats. Data Fabric demonstrates stability at 29.3% by providing a unified data access layer across disparate sources, which are necessary for comprehensive AI training and inference. Notably, the Semantic Layer & Search reaches 20.1% understanding despite being newly measured. It indicates rapid market recognition of its critical role in Retrieval Augmented Generation systems and providing the contextual metadata that enables LLMs to comprehend data relationships and meanings.

This integrated perspective reveals that successful AI implementation requires coordinated architectural components rather than individual technology selections. Organizations building confidence in GenAI also recognize they need supporting infrastructure that includes flexible storage, unified access, and semantic understanding capabilities. For data leaders, architectural decisions must be assessed not as independent technology choices but as elements within a comprehensive AI-enabling system. The levels of Understanding Confidence represented in this survey suggest that organizations are quickly adopting this systems thinking approach, progressing from evaluating individual architectures to comprehending how multiple components collaborate to create AI-ready data platforms. This shift necessitates that data leaders cultivate competence across interconnected technologies rather than specializing in isolated architectural approaches.

## Data Architecture Strategic Value Commitments: 2025 Five-Year Outlook Analysis

The 2025 five-year Strategic Value outlook reveals organizational conviction about long-term architectural commitments that fundamentally reshape enterprise planning assumptions. GenAI with LLMs commands overwhelming strategic confidence at 62.9%, representing the strongest level of long-term commitment. Modern data architecture strategic positioning has undergone dramatic rebalancing, with real-time analytics declining from the 2023 leadership position of 50.0% to 32.0%, while cloud data warehousing maintains relative stability, decreasing from 44.0% to 36.7%. Strategic commitment patterns now clearly separate AI-enabling architectures from standalone technologies, with Data Lakehouse at 33.6% and Data Fabric at 28.2% holding stronger future value positions than Data Streaming Platforms at 22.0% or Data Mesh at 23.2%.

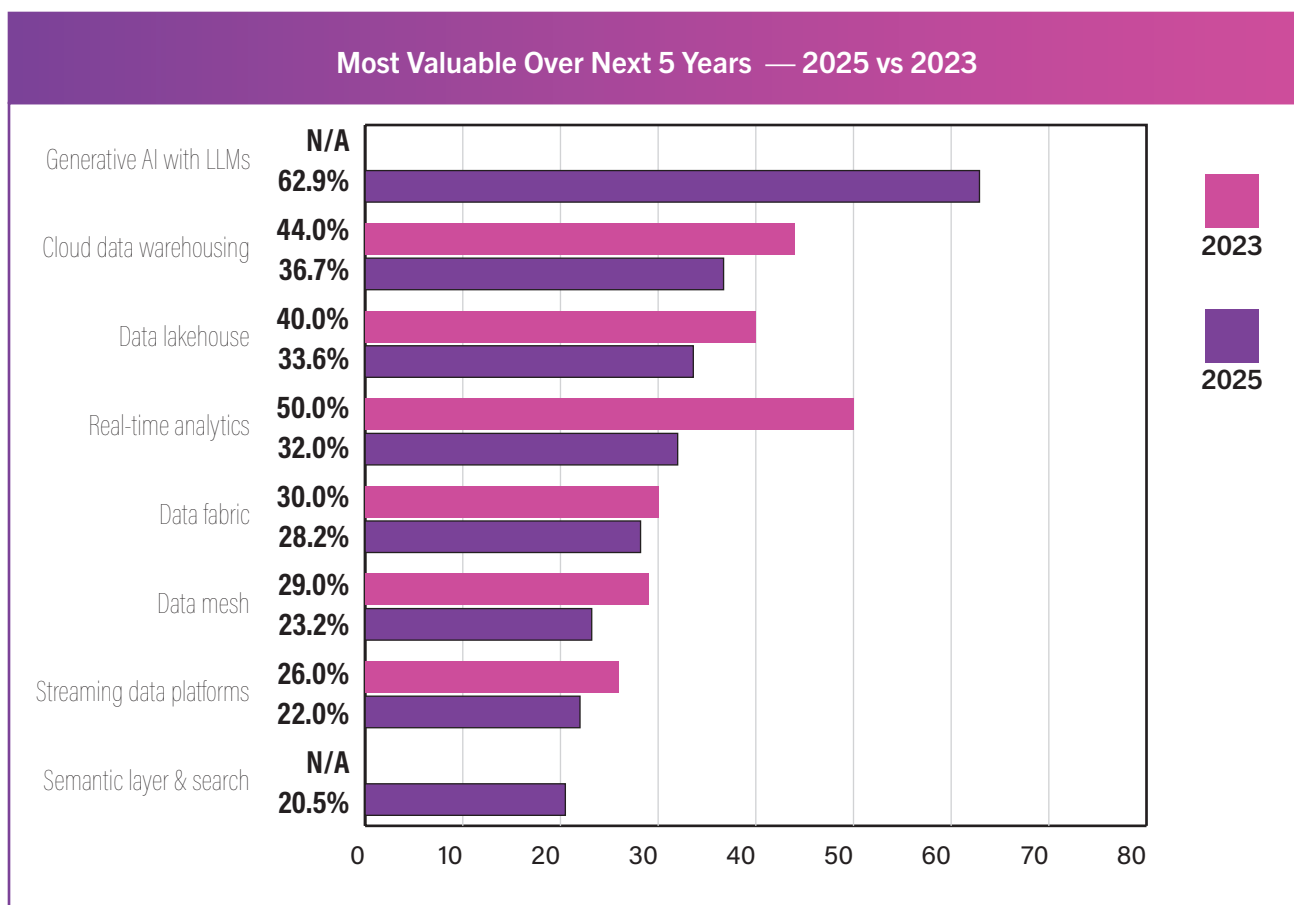


Figure 8. Which data architecture is most valuable to your company over the next 5 years? (click all that apply)

**The Radiant Insight for data leaders** is the conviction-exploration paradox: while GenAI leads both current research interest (57.9%) and long-term strategic commitment (62.9%), most other architectures exhibit distinctive gaps between exploration and strategic conviction. This indicates widespread organizational uncertainty about which supporting technologies will deliver sustained competitive advantage over multi-year planning horizons.

### **Strategic Commitment Analysis: Long-Term Value Conviction in an AI-First Future**

The five-year value projections provide the clearest insight into how organizations are making fundamental strategic bets that will shape their competitive positioning throughout the decade. GenAI's commanding 62.9% commitment reflects organizational conviction for a technology and data architecture that did not exist in enterprise contexts just three years ago. This level of long-term confidence indicates that data leaders are not viewing AI as an experimental capability but as the foundational technology around which all other architectural decisions must be organized. The strength of this conviction creates an imperative for organizations that have yet to develop AI roadmaps, as their competitive peers are making multi-year resource commitments based on AI-first assumptions.

The dramatic long-term repositioning of real-time analytics from 50.0% to 32.0% reveals how profoundly the emergence of AI has altered long-term value calculations. In 2023, real-time analytics represented the dominant future value proposition, suggesting organizations believed competitive advantage would come from faster operational decision-making. The 2025 results indicate a fundamental strategic pivot, where organizations now believe that competitive advantage will arise from intelligent systems capable of providing predictive insights and automated actions, rather than from simply faster human decision-making processes. This shifting pattern represents a rebalancing in enterprise technology adoption, suggesting that data leaders must reconsider whether investments in traditional real-time capabilities will yield sustained competitive differentiation in an AI-dominated future.

The long-term value hierarchy now clearly reflects integrated AI architecture thinking rather than standalone technology selection. Cloud data warehousing's position at 36.7% (declining from 44.0%) indicates recognition of its continued importance as foundational infrastructure, while Data Lakehouse's 33.6% position highlights its long-term role as the flexible storage foundation that AI applications require. Data Fabric's 28.2% strategic value recognition demonstrates an organizational understanding that unified data access capabilities will become increasingly critical as AI systems need comprehensive data contexts for training and inference. A good example of this is the Semantic Layer & Search achieves 20.5% commitment, despite being newly measured, indicating rapid recognition that contextual data understanding capabilities will be essential for AI effectiveness over multi-year horizons.



The implications for data leaders center on architectural coherence in long-term planning rather than technology optimization for current needs. Organizations with strong future value convictions are making investments that AI-enabling architectures will offer sustained competitive advantages, while technologies aimed at accelerating human decision-making face uncertain long-term value propositions. This trend indicates that successful multi-year data architecture strategies must explicitly incorporate AI enablement in all technology selections instead of treating AI as a separate future consideration. Data leaders should assess their five-year roadmaps against these conviction patterns, ensuring that their long-term architectural investments align with the market's clear commitment toward AI-first data strategies that utilize integrated supporting infrastructure.

## Data Architecture Business Drivers: 2025 Investment Justification Analysis

The study of 2025 Business Drivers reveals a fundamental transformation in how organizations justify major data architecture investments, shifting from performance optimization to business value creation and AI enablement. AI and GenAI use case adoption leads the primary business justification at 49.4%, maintaining its position as the most compelling driver for architectural transformation while slightly strengthening from 48.6% in 2023. Business value and operational efficiency drivers have emerged in 2025 as major new justification themes, with previously unmeasured drivers like “improve data freshness and accessibility” (40.2%), “modernize legacy data architecture” (38.2%), and “reduce total cost of ownership” (36.3%) now representing measurable investment motivations. Traditional performance-focused drivers have experienced a substantial decline in compelling power, with “increase operational real-time analytics” dropping from 49.5% to 37.1% and “increase broader analytics performance, scalability, and agility” falling from 47.1% to 31.3%.

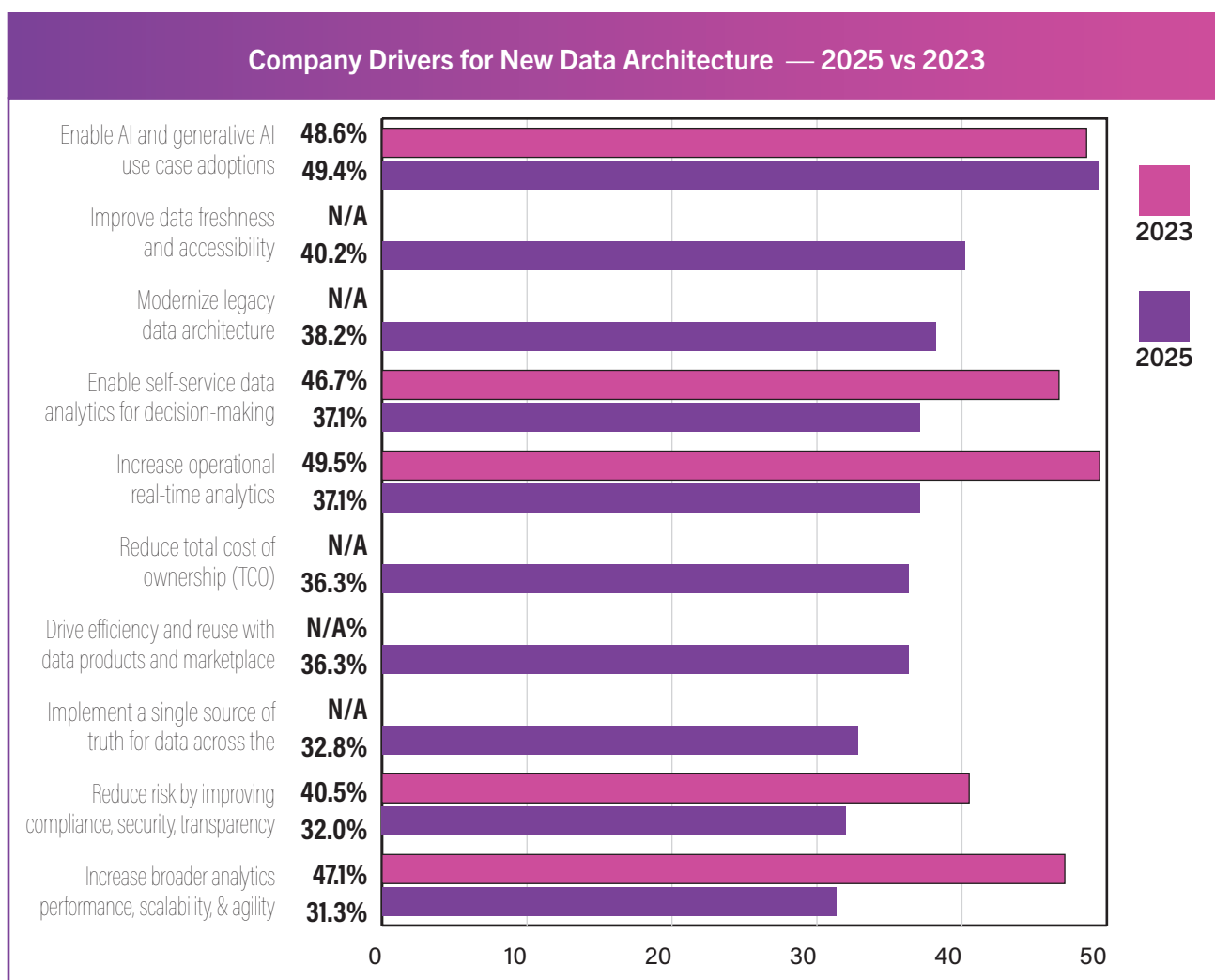


Figure 9. What are your company's drivers for considering and adopting a new data architecture? (Click all that apply)

**The Radiant Insight for data leaders:** The business case is evolving from technical optimization to strategic transformation. Organizations are no longer justifying investments in data architecture primarily based on making existing processes faster or more efficient. Instead, they focus on enabling entirely new AI-powered business capabilities and creating sustainable competitive advantages through intelligent data utilization.

### **Strategic Business Justification Analysis: The New Investment Logic**

The evolution of business drivers demonstrates how organizations have fundamentally reconceptualized the business case for major data architecture initiatives, shifting from justifications for incremental improvements to the creation of transformational capabilities. The sustained leadership of AI enablement at 49.4% indicates that artificial intelligence has transcended mere technological interest, becoming the primary business rationale for architectural investment. This continuity between 2023 and 2025, despite changes in other drivers, shows that AI's business case has proven resilient and compelling enough to justify the substantial organizational commitment needed for architectural transformation. Data leaders can confidently position AI enablement as the cornerstone business justification, understanding that executive stakeholders increasingly regard AI capabilities as essential rather than experimental.

The emergence of business value and operational efficiency themes signifies a sophisticated maturation in architectural justification approaches. The appearance of drivers like “improve data freshness and accessibility” (40.2%), “drive efficiency and reuse with data products and marketplace” (36.3%), and “reduce total cost of ownership” (36.3%) indicates that organizations have moved beyond basic modernization arguments to develop nuanced business cases that emphasize sustainable value creation. This evolution suggests that successful data architecture initiatives now require multi-dimensional business justifications that combine AI enablement with concrete operational improvements and cost management benefits. The focus on data products and marketplace efficiency particularly reflects growing organizational sophistication in treating data as a strategic asset rather than merely an operational necessity.

The decline in traditional performance drivers reveals a fundamental shift in organizational priorities and competitive understanding. Real-time analytics fell from 49.5% to 37.1%, and broader analytics performance dropped from 47.1% to 31.3%, indicating that organizations no longer regard faster or more scalable analytics as primary competitive differentiators. This pattern suggests that the business case for speed and performance improvements has been replaced by arguments for intelligence and automation capabilities. Similarly, the decrease in compliance and risk reduction drivers from 40.5% to 32.0% indicates that organizations have largely addressed foundational governance concerns and are now concentrating on value creation rather than risk mitigation.

The strategic implications for data leaders center on developing integrated business cases that combine AI enablement with operational transformation, rather than relying on traditional arguments for technical improvements. The driving patterns indicate that successful architectural initiatives now necessitate business justifications that illustrate how AI capabilities will transform business operations, while also improving data accessibility, reducing costs, and creating reusable data assets.

Data leaders should structure their business cases to highlight how AI-enabling architectures will create sustainable competitive advantages through intelligent automation, enhanced decision-making capabilities, and data-driven business model innovations, while also providing the operational efficiency and cost management benefits that executive stakeholders expect from infrastructure investments.

## Data Source Evolution: 2025 Architectural Requirements Validation

The 2025 Data Source Requirements landscape validates the architectural transformation patterns identified throughout our strategic framework analysis. Data types that enable AI dominate organizational expectations, with real-time streaming data reaching 49.4% and Cloud SaaS platforms achieving 44.4%, despite not being measured in 2023. Traditional data sources exhibit strategic rebalancing rather than decline, with operational databases maintaining stability at 54.8%, while document/semi-structured data expectations dropped from 55.0% to 39.0%. The data portfolio has become fundamentally more complex and AI-oriented, with newly measured categories like external API data feeds (38.6%) and social data (28.2%) indicating that organizations are building architectures capable of integrating diverse, dynamic sources for comprehensive AI capabilities.

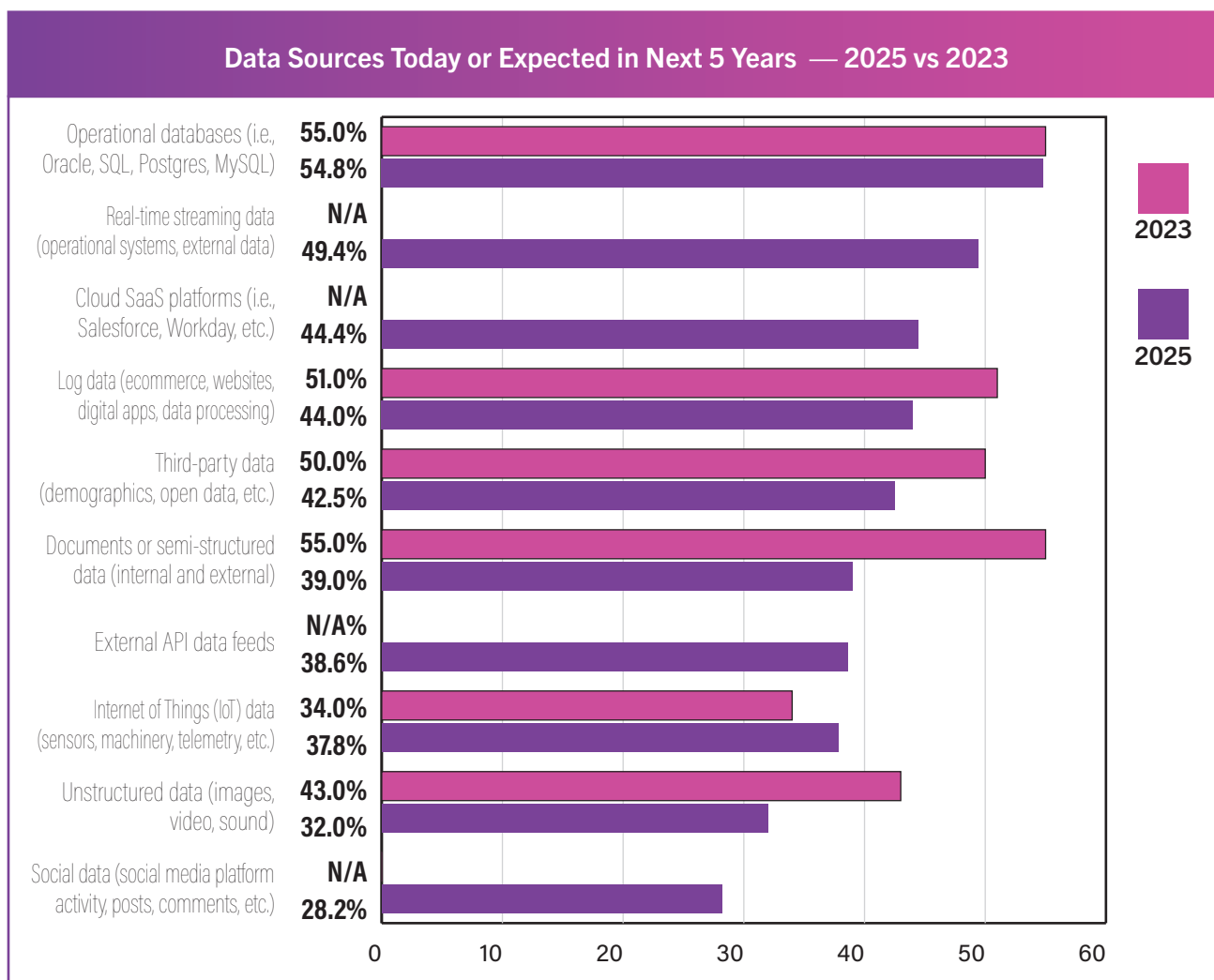


Figure 10. What types of source data do you have today or expect to have in the next 5 years?

**The Radiant Insight for data leaders:** Validate the correlation of data architecture. Organizations that require complex, real-time, and diverse data sources are increasing the demand for AI-enabled architectures. This confirms that architectural priorities align with actual business needs rather than solely reflecting preferences for technology.

### **Strategic Requirements Analysis: Data Complexity Drives Architectural Necessity**

The evolution of expected data sources supports the architectural transformation patterns observed in our six-dimensional framework. Expectations for real-time streaming data at 49.4% directly correlate with investments in AI-enabling architecture and business case drivers aimed at enhancing operational efficiency and intelligent automation. This requirement clarifies why the Data Lakehouse maintains a strong strategic position at 33.6% and confirms the ongoing value of real-time analytics, despite declining priority compared to GenAI. Streaming data necessitates the integrated AI-enabling stack that organizations have identified as strategically valuable—flexible storage, unified access, and intelligent processing capabilities.

Cloud SaaS platforms at 44.4% and external API feeds at 38.6% support the strategic positioning of Data Fabric and the Semantic Layer. These sources create integration challenges that require unified access across disparate systems and the contextual understanding provided by semantic technologies. Organizations cannot achieve business outcomes related to data accessibility and efficiency without architectural approaches that seamlessly integrate diverse cloud-based and external sources into AI-ready environments.

The stability of operational databases at 54.8%, combined with declining document processing expectations, demonstrates the maturation of a sophisticated data strategy. Organizations remain focused on the reliable, structured foundations that AI systems require while selectively evaluating unstructured sources that introduce processing complexity without clear business value. This shift correlates with the evolution of business cases from technical optimization to strategic transformation, prioritizing data sources that enable AI-powered capabilities instead of comprehensive collection approaches.

The strategic imperative for data leaders focuses on aligning architectural investments with true data complexity requirements. Organizations that expect real-time streaming, multiple SaaS integrations, and external API feeds have valid needs for AI-enabling infrastructure. Those with simpler portfolios may achieve AI objectives through less complex strategies aimed at optimizing core operational assets. Data source complexity should direct architectural investment decisions, ensuring strategies align with the organization's data reality rather than pursuing extensive modernization that exceeds actual needs and provides limited business value.

## Cloud Platform Selection: 2025 Infrastructure Context Analysis

The study of the 2025 Cloud Platform landscape provides important infrastructure context for data leaders, although correlations with specific data architecture strategies seem more operational than strategic. Microsoft Azure leads at 49.0%, with Amazon Web Services closely trailing at 43.2%, maintaining the anticipated hyperscale dominance while showing interesting shifts in competitive positioning. IBM Cloud shows unexpected growth from 20.0% to 30.9%, representing the most momentum change among platforms and potentially reflecting strategic choices based on AI and hybrid capabilities rather than general infrastructure preferences. Multi-cloud adoption has intensified, with only 6.2% of organizations planning on-premises-only operations, indicating that cloud platform decisions have evolved into complex portfolio choices rather than single-vendor commitments.

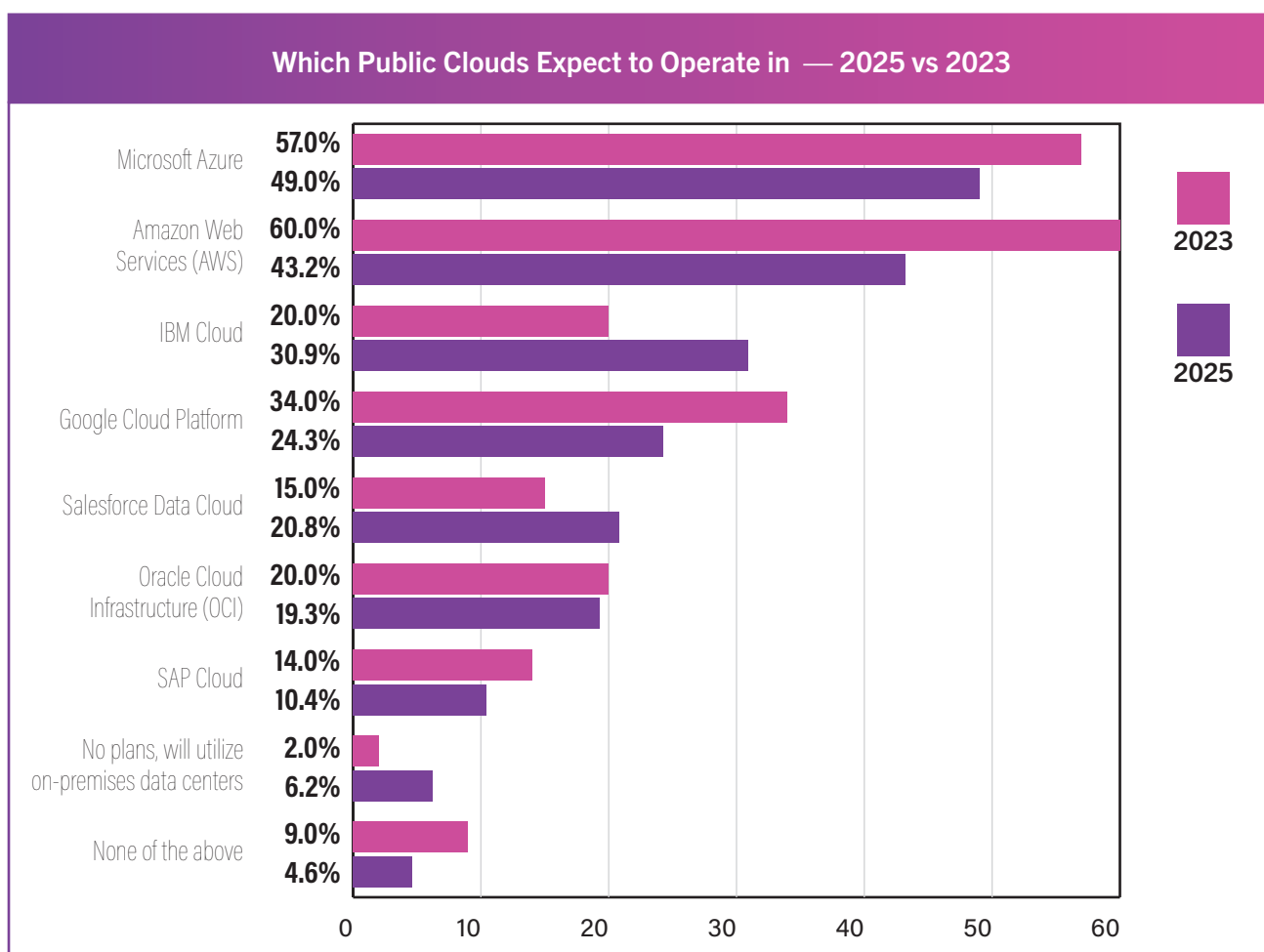


Figure 11. Which public cloud platform(s) do you expect to operate within? (Click all that apply)

**The Radiant Insight for data leaders:** Patterns in cloud platform selection reflect operational pragmatism more than alignment with architectural strategy. This suggests that organizations are developing multi-cloud capabilities to leverage the unique strengths of different platforms while maintaining strategic flexibility, rather than making platform choices primarily based on data architecture enablement capabilities.

### **Strategic Infrastructure Context: Platform Selection in a Multi-Cloud Reality**

Understanding cloud platform trends provides data leaders with essential market context for infrastructure planning. However, the correlations with specific data architecture strategies seem weaker than our previous analytical dimensions. The close competition between Microsoft Azure at 49.0% and AWS at 43.2% reflects mature market dynamics where both platforms offer sufficient capabilities for most data architecture requirements. The slight shift toward Azure (declining from 57.0% in 2023) and AWS (declining from 60.0%) indicates that organizations are making more deliberate platform selections instead of defaulting to market leaders. However, ongoing Radiant research indicates that cloud platforms are influenced more by enterprise relationships, cost optimization, and integration requirements than by specific architectural enablement needs.

IBM Cloud's substantial growth from 20.0% to 30.9% represents a strategically notable platform trend, potentially indicating that some organizations are making more selective platform choices based on specific capabilities rather than general market presence. IBM's focus on AI services, hybrid cloud architecture, and enterprise integration may resonate with organizations pursuing the AI-first data strategies identified throughout our framework analysis. However, this correlation requires careful interpretation since IBM's growth coincides with broader multi-cloud adoption patterns that suggest organizations are choosing multiple platforms for various operational reasons rather than concentrating investments on architectural strategy alignment.

The intensification of multi-cloud adoption patterns reveals sophisticated infrastructure thinking that supports architectural flexibility rather than optimizing for specific data strategies. With organizations selecting an average of 2.4 cloud platforms compared to 2.1 in 2023, the trend indicates that data leaders are building infrastructure portfolios designed to utilize the unique capabilities of different platforms while maintaining strategic optionality. This approach aligns with the integrated AI-enabling architecture stack we've identified by ensuring organizations can utilize best-of-breed services across multiple platforms rather than limiting their architectural choices to single-vendor ecosystems. The dramatic 4.2% increase in on-premises-only operations, from 2.0% in 2023 to 6.2% in 2025, confirms that cloud adoption has reached near-universal levels, making platform selection decisions more about optimization and capability access than fundamental modernization choices.



The implications for data leaders focus on developing cloud platform strategies that support architectural flexibility while managing operational complexity. The platform selection patterns suggest that successful organizations are building multi-cloud capabilities, enabling them to access specialized AI services, data processing capabilities, and integration tools across different providers rather than optimizing their infrastructure for specific data architectures. This approach aligns with the integrated AI-enabling architecture approach we've observed, where organizations need diverse capabilities working together instead of relying on single-platform solutions. Data leaders should view cloud platform decisions as infrastructure portfolio management that facilitates architectural optionality rather than strategic commitments that limit their data architecture choices to specific vendor ecosystems.

## Enterprise Budget Commitment and Implementation Strategy: 2025 Comprehensive Analysis

### 2025 Strategic Implementation Pattern: Tactical Focus with Organizational Commitment

The 2025 budget and implementation landscape reveal a sophisticated organizational approach that fundamentally differs from traditional enterprise technology adoption patterns. With 85.3% of organizations securing budgets, 49.8% allocating less than \$100k, and 82.6% planning implementation by year-end, we observe a market-wide shift toward tactical, use-case-driven implementations backed by strong organizational commitment. This pattern validates the integrated AI-enabling architecture stack approach we've identified throughout our framework analysis, where organizations build comprehensive capabilities through focused, incremental deployments rather than overarching system overhauls.

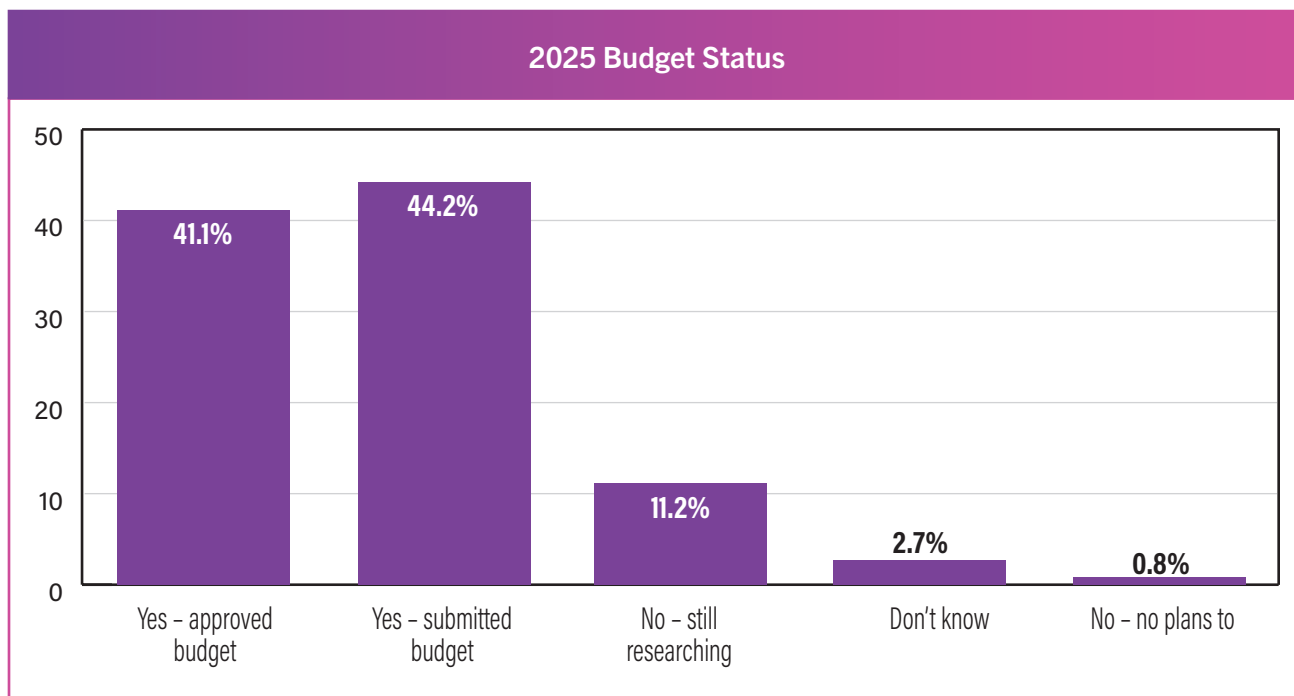


Figure 12. Has your organization budgeted for initiative(s) related to modernizing the data platform, enabling real-time analytics, implementing data products, or enabling AI, GenAI, or ML?

Understanding the distribution implementation timeline for enterprise data architectures provides critical competitive intelligence for data leaders. The 24.7% of organizations already implementing since 2024 represent early adopters who have established competitive positioning advantages through operational experience with AI-enabling architectures. The dominant implementation wave targets Q3-Q4 2025 (43.6%), creating a synchronized market transformation where the majority of organizations will simultaneously deploy their data architecture strategies. This concentration means that strategic decisions made in the coming months will determine whether organizations join the main implementation wave or fall into the smaller group deferring to 2026 (14.3%) or beyond (2.3%).

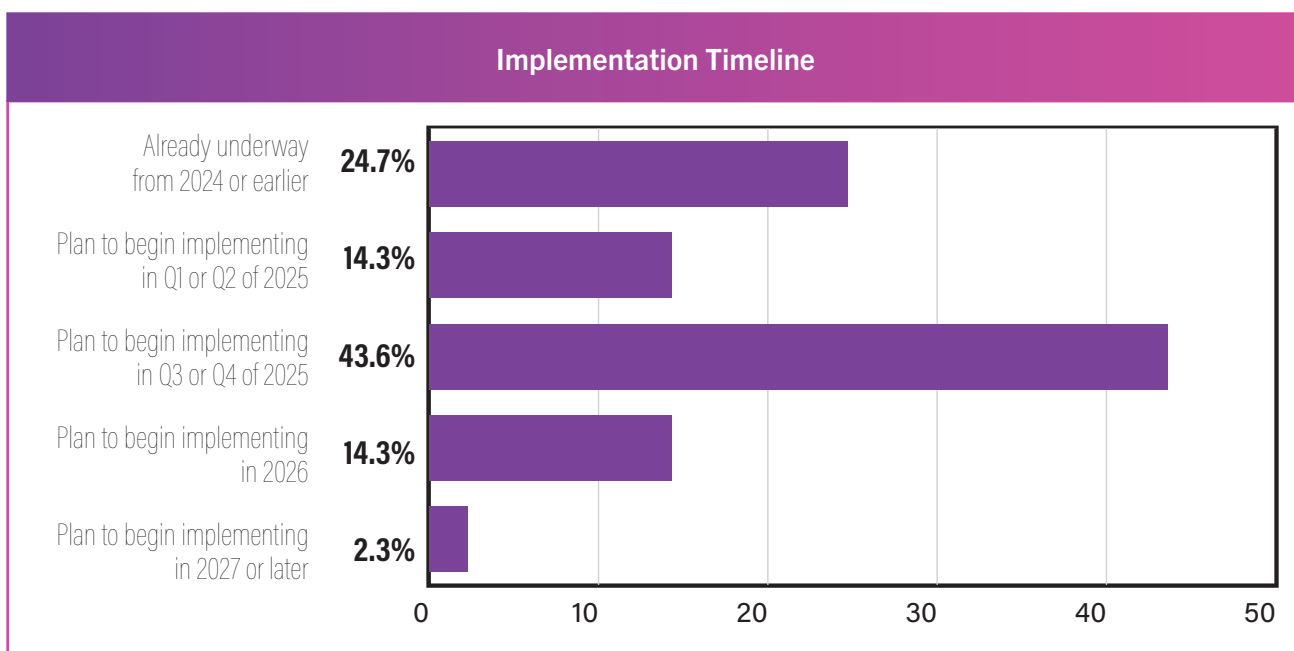


Figure 13. When is your company planning to implement your data architecture initiative?

The budget allocation strategy reveals sophisticated resource management that supports rapid value demonstration while building toward comprehensive transformation. Organizations allocating \$50,001-\$100k (28.2%) and \$1-\$50k (21.6%) are pursuing focused implementations that can deliver measurable business outcomes within compressed timelines, aligning with the business case evolution from technical optimization to strategic transformation we observed in our framework analysis. The moderate allocation group (\$100,001-\$500k at 18.1%) likely represents organizations implementing multiple coordinated use cases or more comprehensive AI-enabling infrastructure components simultaneously.

The correlation between high organizational commitment and tactical budget allocation demonstrates market maturation beyond experimental approaches to strategic execution. When organizations commit to 85.3% budget approval rates while concentrating 49.8% of allocations under \$100k, they signal a sophisticated understanding that AI-enabling architectures deliver optimal value through targeted implementations that collectively create comprehensive capabilities. This approach enables organizations to validate technical strategies, demonstrate business value, and build organizational competence before scaling to broader deployments.

### Strategic Evolution: From Enterprise Overhauls to Tactical Transformation (2023–2025)

The comparison of budget allocation patterns between 2023 and 2025 captures one of the most significant shifts in enterprise technology investment strategy. Budget investments over \$1 million declined dramatically from 23.8% to 6.9%, representing a 16.9 percentage point decrease. In contrast, smaller tactical allocations surged, with those between \$50,001 and \$100,000 increasing from 7.1% to 28.2%, and those from \$1 to \$50,000 growing from 4.3% to 21.6%. This transformation represents a fundamental recalibration from comprehensive enterprise overhauls to strategic, use-case-driven implementations that build integrated capabilities incrementally.

This budget reallocation pattern directly correlates with the architectural transformation trends identified in our framework analysis. Organizations have shifted from viewing data architecture modernization as a monolithic infrastructure replacement to recognizing it as an integrated AI-enabling capability development that necessitates tactical implementations across multiple architectural components. The move towards smaller budgets allows organizations to deploy Data Lakehouse storage foundations, Data Fabric unified access capabilities, and Semantic Layer contextual understanding technologies concurrently through coordinated but manageable project scopes.

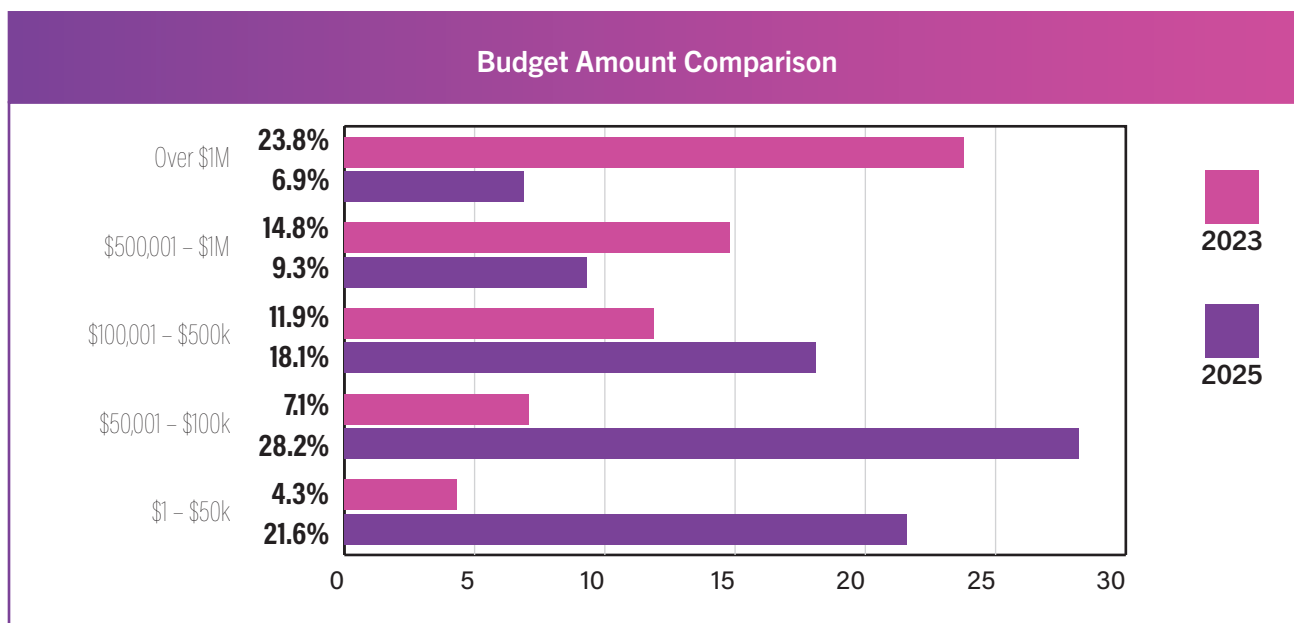


Figure 14. How much of the budget is (or will be) assigned to the initiative(s)?

The synchronized implementation timeline, with 82.6% of organizations aiming for 2025 deployment compared to the more distributed patterns typical of previous enterprise technology cycles, shows that data architecture modernization has gained market-wide recognition as a competitive necessity rather than an optional enhancement. This synchronization creates market dynamics where competitive advantages will be determined by execution quality and timing within a compressed implementation window instead of adoption timing across multiple years.

The combination of tactical budget allocation with synchronized implementation timelines demonstrates that organizations have developed a sophisticated understanding of how to achieve comprehensive data architecture transformation through focused, coordinated initiatives. This approach reduces implementation risk, accelerates value realization, and enables organizational learning while building toward integrated AI-enabling architectures that provide sustained competitive advantage. Data leaders who align their implementation strategies with these market patterns position themselves to maximize both execution success and competitive standing within the synchronized transformation wave that defines the current market reality.

## Deep-Dive Analysis of Enterprise Data Architecture

Our analysis of GenAI with LLMs, Semantic Layer & Search, Data Lakehouse, Data Fabric, Streaming Data & Real-time Analytics, and Cloud Migration reveals how these architectural approaches are evolving from independent initiatives into an integrated strategic framework that drives organizations towards becoming AI-powered operations.

The analysis reveals three distinct maturation patterns across these architectural trends that directly correlate with organizational confidence and implementation success.

- ▶ GenAI demonstrates strong market acceptance with 39.0% of organizations actively involved and clear business value recognition, establishing itself as the organizing principle that influences how organizations evaluate and prioritize other architectural investments.
- ▶ Established trends like Streaming Data Platforms and Data Lakehouse show healthy progression from conceptual understanding to detailed implementation expertise, with organizations moving beyond basic infrastructure concerns toward sophisticated architectural integration challenges.
- ▶ Emerging approaches like Data Fabric experience market recalibration as initial enthusiasm encounters implementation complexity, while Semantic Layer trends remain in active evaluation phases despite clear potential for enabling AI initiatives.

These patterns suggest that a successful data architecture strategy requires understanding not just individual architectural capabilities, but how organizational readiness, strategic alignment, and implementation complexity interact to determine which trends deliver sustainable competitive advantage in an AI-driven business environment.

## Cloud Migration: Strategic Infrastructure Foundation Analysis

The cloud migration landscape reveals a fundamental transformation from tactical infrastructure concerns to strategic AI enablement between 2023 and 2025. Traditional implementation obstacles have decreased, with concerns about cloud cost management dropping from 49.0% to 27.8%, data security and governance declining from 48.0% to 28.2%, and the migration from legacy architecture decreasing from 42.0% to 25.9%. This evolution indicates that organizations have mostly mastered the essential mechanics of cloud adoption and now face more sophisticated strategic challenges.

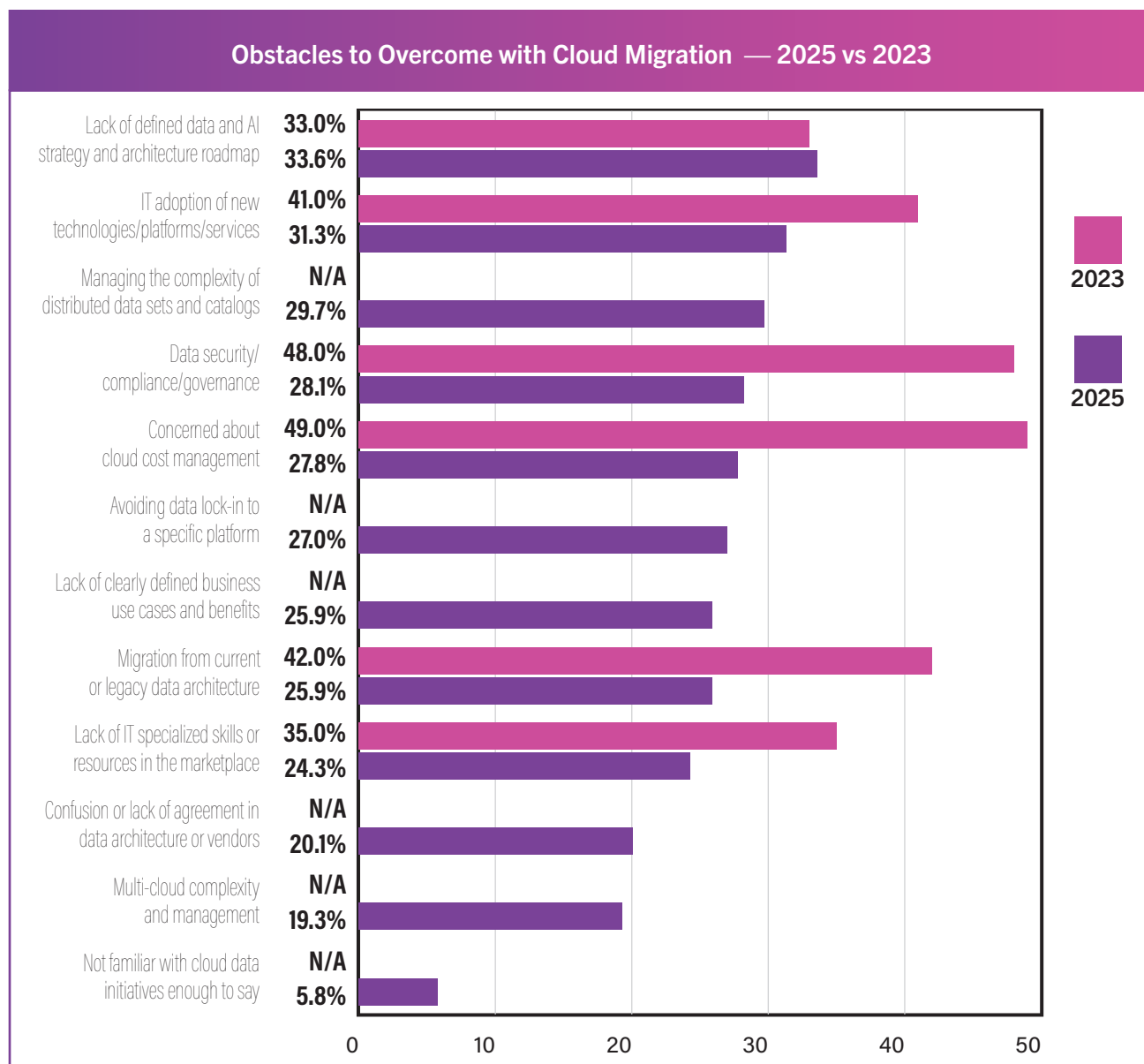


Figure 15. What do you believe are obstacles to overcome in your cloud data migration? (Click all that apply)

A notable development is the emergence of AI-focused strategic obstacles that were not measured in 2023. Managing the complexity of distributed data sets and catalogs affects 29.7% of organizations, while avoiding data lock-in to specific platforms concerns 27.0%. Most tellingly, the lack of clearly defined business use cases and benefits challenges 25.9% of organizations, and confusion about data architecture approaches impacts 20.1%. These new barriers represent the challenges organizations face when moving beyond basic cloud infrastructure toward AI-enabled data architectures.

Business value expectations reflect this strategic evolution, albeit with important nuances. The emergence of “AI-driven data growth supported by scalable cloud resources” as a newly measured outcome at 32.0% demonstrates how organizations now view cloud infrastructure as the essential foundation for AI initiatives. However, traditional value propositions have declined across most categories, with enabling broader analytics decreasing from 43.0% to 33.6% and easier data integration dropping from 46.0% to 29.7%. This pattern suggests that as organizations develop more sophisticated cloud implementations, they recognize that cloud migration alone doesn’t automatically deliver advanced capabilities.

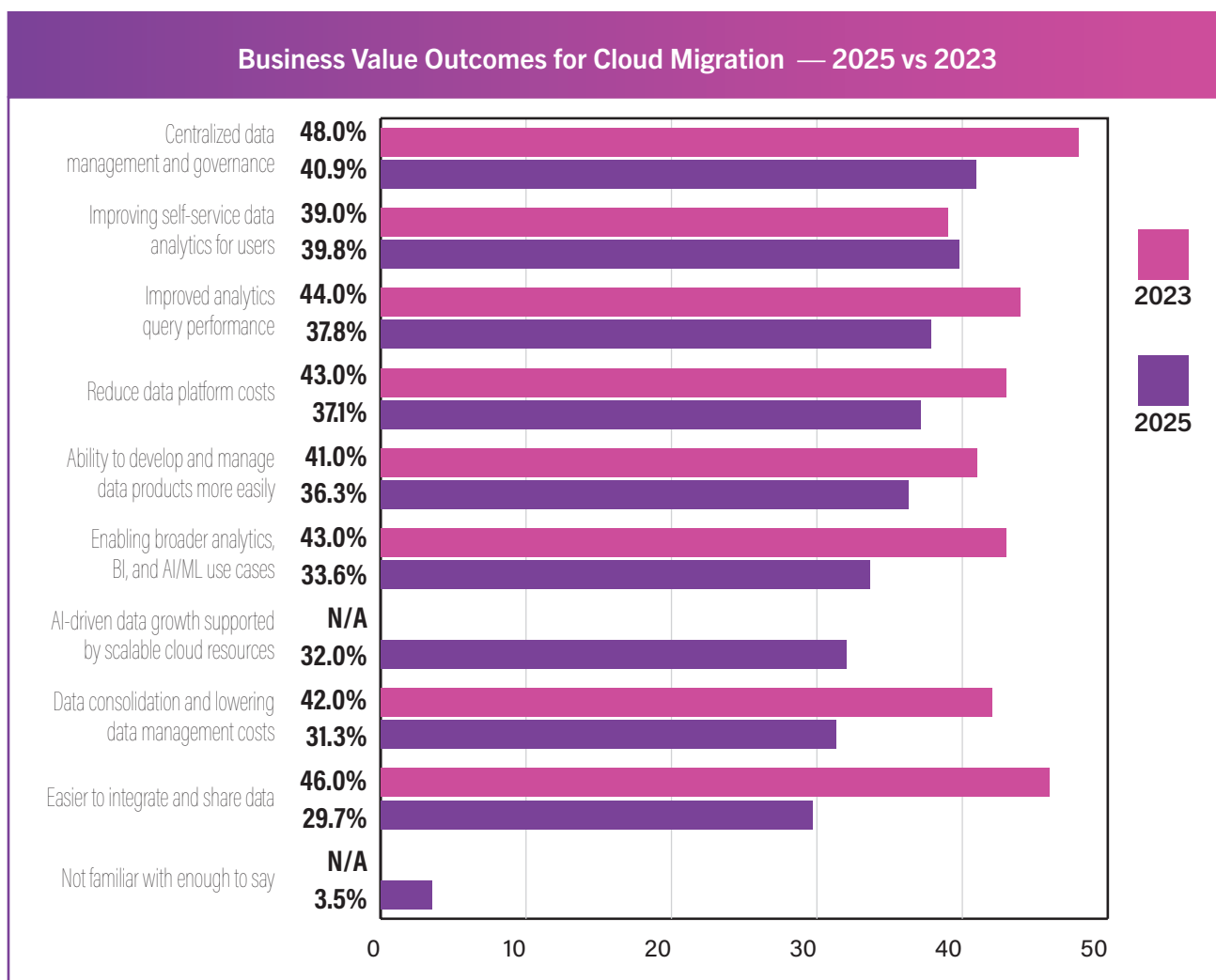


Figure 16. What do you believe are the business value outcomes of a cloud migration initiative? (Click all that apply)

Critical correlations reveal how challenges in cloud infrastructure directly impact the success of the advanced data architectures analyzed throughout this study. Organizations citing challenges related to distributed data complexity (29.7%) must address these issues to effectively implement Data Lakehouse architectures, which require seamless integration across varied data sources. Similarly, those grappling with architecture confusion (20.1%) encounter obstacles to implementing Streaming Analytics solutions that rely on clear technical roadmaps for real-time data integration.

The persistence of strategic roadmap challenges at 33.6% strongly correlates with the emergence of AI-driven growth expectations at 32.0%, revealing a fundamental gap between organizational AI aspirations and execution capabilities. Organizations acknowledge cloud infrastructure as essential for AI scalability but lack the strategic frameworks to translate this infrastructure capability into business outcomes.

For data leaders, these patterns show that successfully migrating to the cloud now relies more on strategic planning than on technical implementation. The reduction in traditional barriers indicates that fundamental cloud capabilities are well understood, but organizations need to cultivate advanced data and AI strategies to unlock greater value. Cloud infrastructure acts as the critical foundation that allows for the flexibility of the Data Lakehouse, the scalability of Streaming Analytics, and the integration of the Semantic Layer that we've noted throughout this analysis. However, achieving success mandates a coordinated strategic vision rather than scattered technology deployment.

### Data Lakehouse: Strategic Market Evolution Analysis

The Data Lakehouse market positioning reveals a technology undergoing healthy maturation between 2023 and 2025. Active involvement decreased from 39.0% to 28.4%, while organizations currently researching increased from 30.0% to 36.2%, suggesting that early adopters have transitioned from implementation phases to operational use as new organizations enter evaluation cycles. This transition pattern indicates sustainable market expansion rather than stagnation in adoption. Educational needs remain stable, with 21.4% requiring conferences and webinars compared to 18.0% in 2023, while overall awareness stays strong with minimal unfamiliarity.



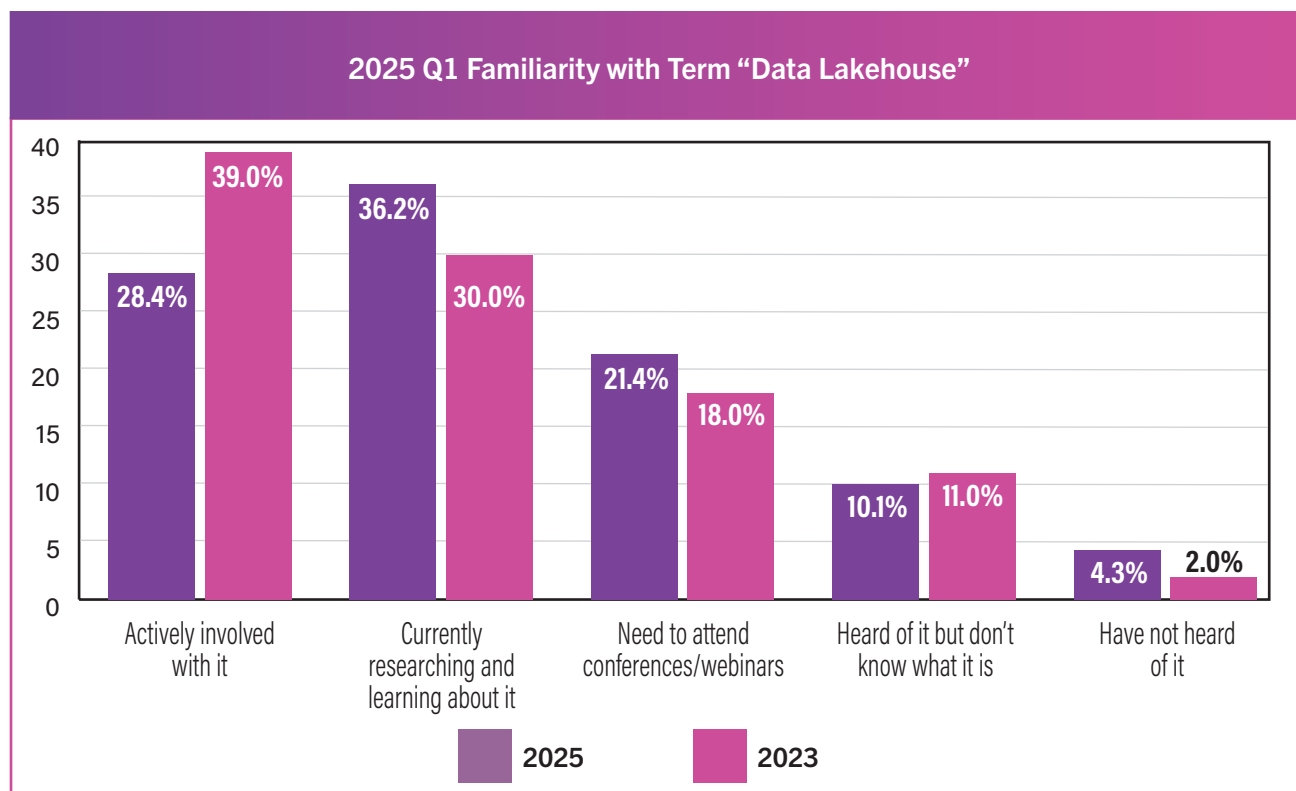


Figure 17. What is your familiarity with the term “Data Lakehouse”?

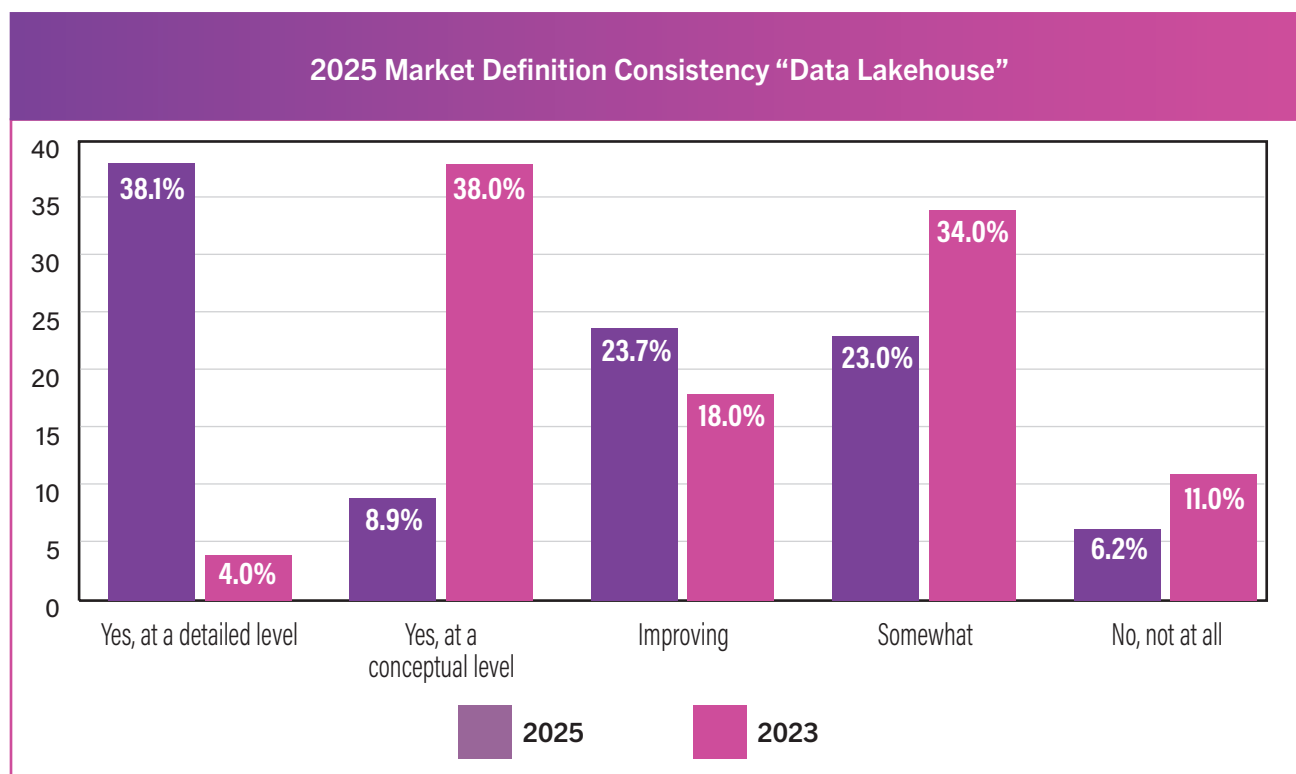


Figure 18. Do you think the definition of “Data Lakehouse” is well understood and consistent in the industry?

The most compelling evidence of market maturation appears in the evolution of definitional understanding. Organizations showcasing a detailed understanding increased dramatically from 4.0% in 2023 to 38.1% in 2025—nearly a ten-fold improvement that reflects one of the most significant patterns of knowledge advancement observed across all architectures. At the same time, conceptual understanding decreased from 38.0% to 8.9%, indicating that organizations have moved beyond surface-level awareness to develop practical implementation expertise.

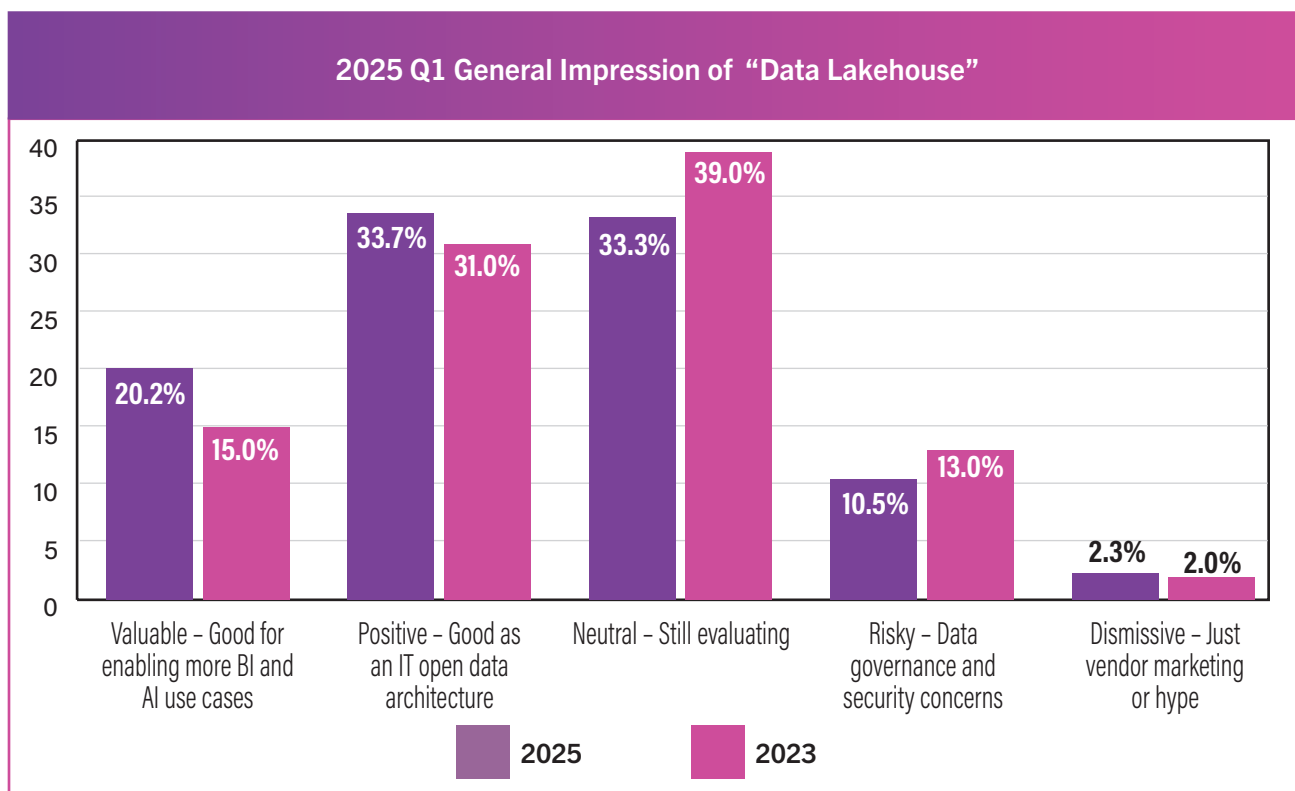


Figure 19. What is your general impression of the “Data Lakehouse” architecture?

Organizational impressions demonstrate positive momentum and increased confidence in Data Lakehouse architecture. Perceptions of Data Lakehouse as valuable for enabling BI and AI use cases increased from 15.0% to 20.2%, while positive impressions as an IT open data architecture also grew from 31.0% to 33.7%. Neutral evaluations decreased from 39.0% to 33.3%, and risk concerns about data governance and security declined from 13.0% to 10.5%. This pattern shows that organizations are forming more definitive judgments based on experience and increasingly positive judgments across both strategic value and technical implementation dimensions.

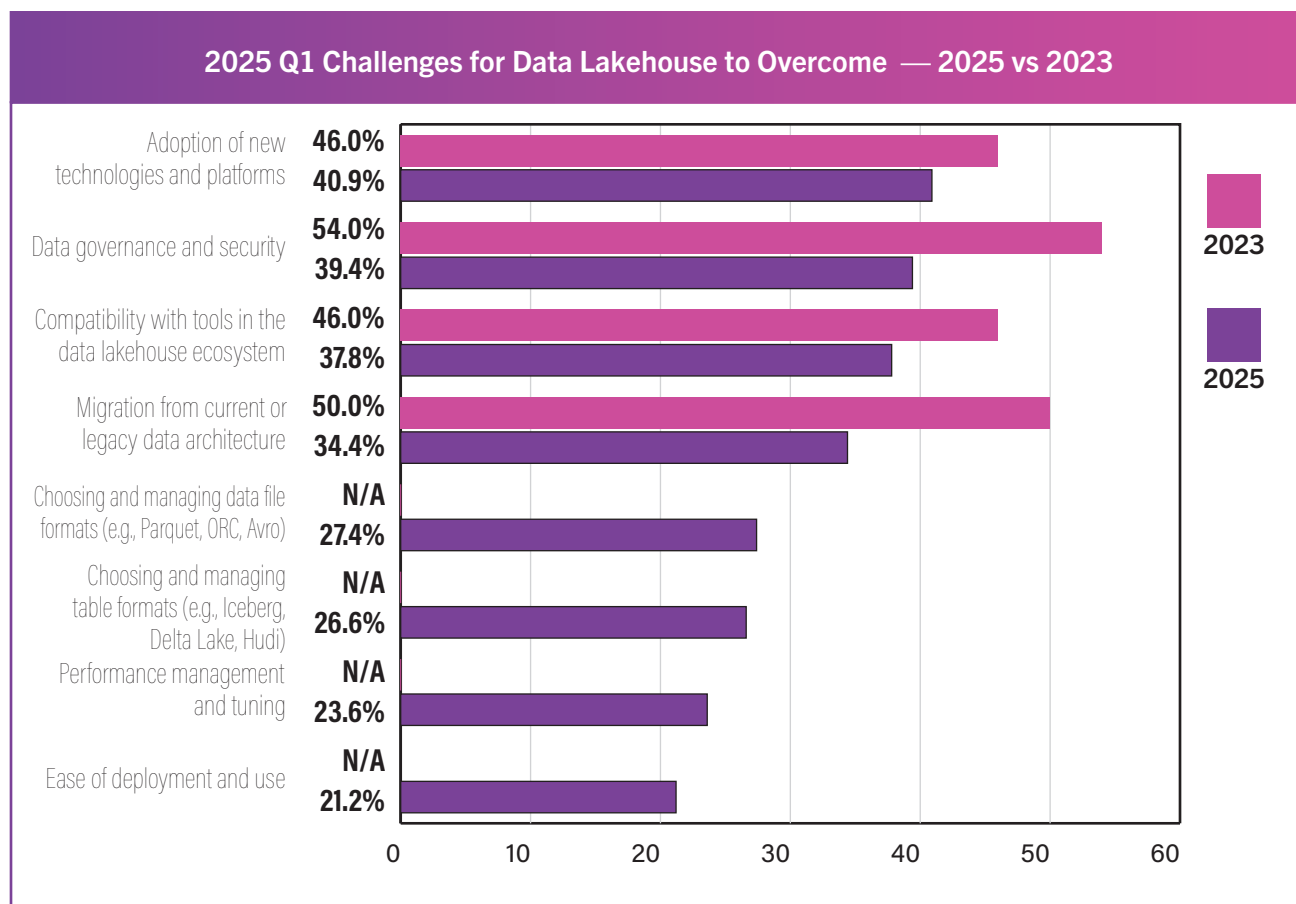


Figure 20. What do you believe are challenges that a Data Lakehouse initiative will have to overcome? (Click all that apply).

Implementation challenges indicate a deeper sophistication in market engagement. While traditional strategic concerns, such as data governance and security, decreased from 54.0% to 39.4% and migration from legacy architecture declined from 50.0% to 34.4%, new technical implementation challenges emerged in 2025 that were not assessed in 2023. Organizations now identify specific technical decisions as primary concerns: choosing and managing data file formats affects 27.4%, table formats are a concern for 26.6%, performance management challenges are noted at 23.6%, and deployment ease impacts 21.2%.

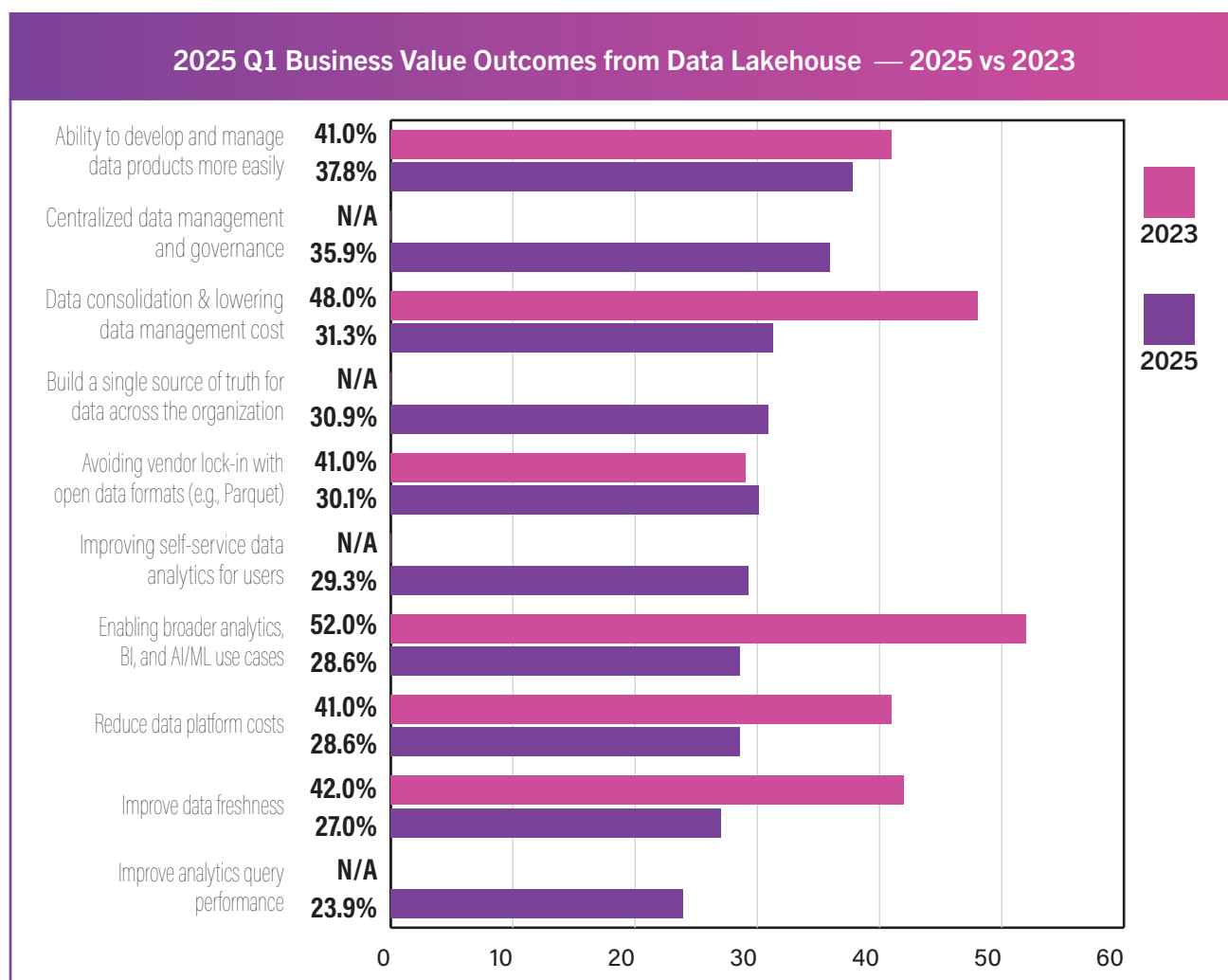


Figure 21. What do you believe are the business value outcomes of a Data Lakehouse initiative? (Click all that apply)

Business value expectations showcase a refined understanding; however, the evolution of survey design demands careful interpretation. While strategic aspirations such as enabling broader analytics decreased from 52.0% to 28.6%, this apparent decline likely indicates expanded response options in 2025 rather than a reduced organizational interest. The 2025 survey introduced several specific value categories that weren't measured in 2023, including the ability to develop and manage data products more easily at 37.8%, centralized data management and governance at 35.9%, building a single source of truth at 30.9%, and enhancing self-service analytics at 29.3%. When viewed collectively, these new categories suggest that organizations are now expressing the value of Data Lakehouse with greater precision rather than diminished enthusiasm.

For data leaders, these evolution patterns indicate that the Data Lakehouse has successfully transitioned through its initial adoption phases toward sustainable market maturity. The combination of a more detailed understanding, clearer value expectations, and a specific focus on technical implementation suggests that organizations should approach Data Lakehouse initiatives with confidence in foundational capabilities while maintaining realistic expectations about transformational outcomes.

## Data Fabric: Strategic Market Recalibration Analysis

The Data Fabric market positioning reveals a technology that is undergoing recalibration between 2023 and 2025. Active involvement declined substantially from 39.0% to 22.5%, while organizations currently researching increased from 30.0% to 34.5%, indicating a shift away from implementation confidence toward cautious evaluation. Most concerning, unfamiliarity has increased across multiple categories: those who have heard of it but don't understand what it is grew from 11.0% to 14.7%, while those who haven't heard of it at all rose from 2.0% to 7.4%. This pattern suggests a market retreat rather than expansion.

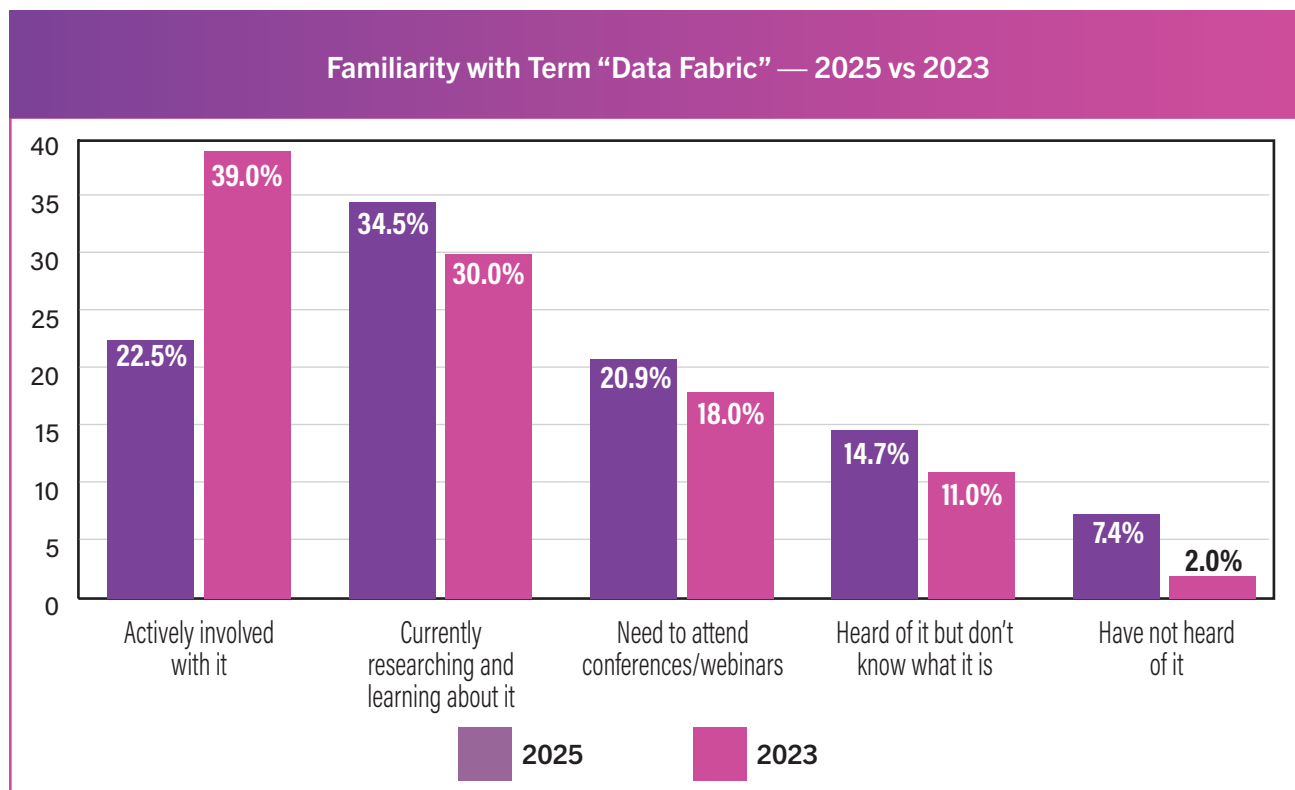


Figure 22. What is your familiarity with the term “Data Fabric”?

Despite declining engagement, the definitional understanding shows a transformation similar to the evolution of Data Lakehouse. Organizations with a detailed understanding increased significantly from 4.0% to 38.0%, while conceptual understanding fell from 38.0% to 10.5%. This inversion indicates that, although fewer organizations are actively pursuing Data Fabric, those that remain have developed deeper practical knowledge through implementation experience.

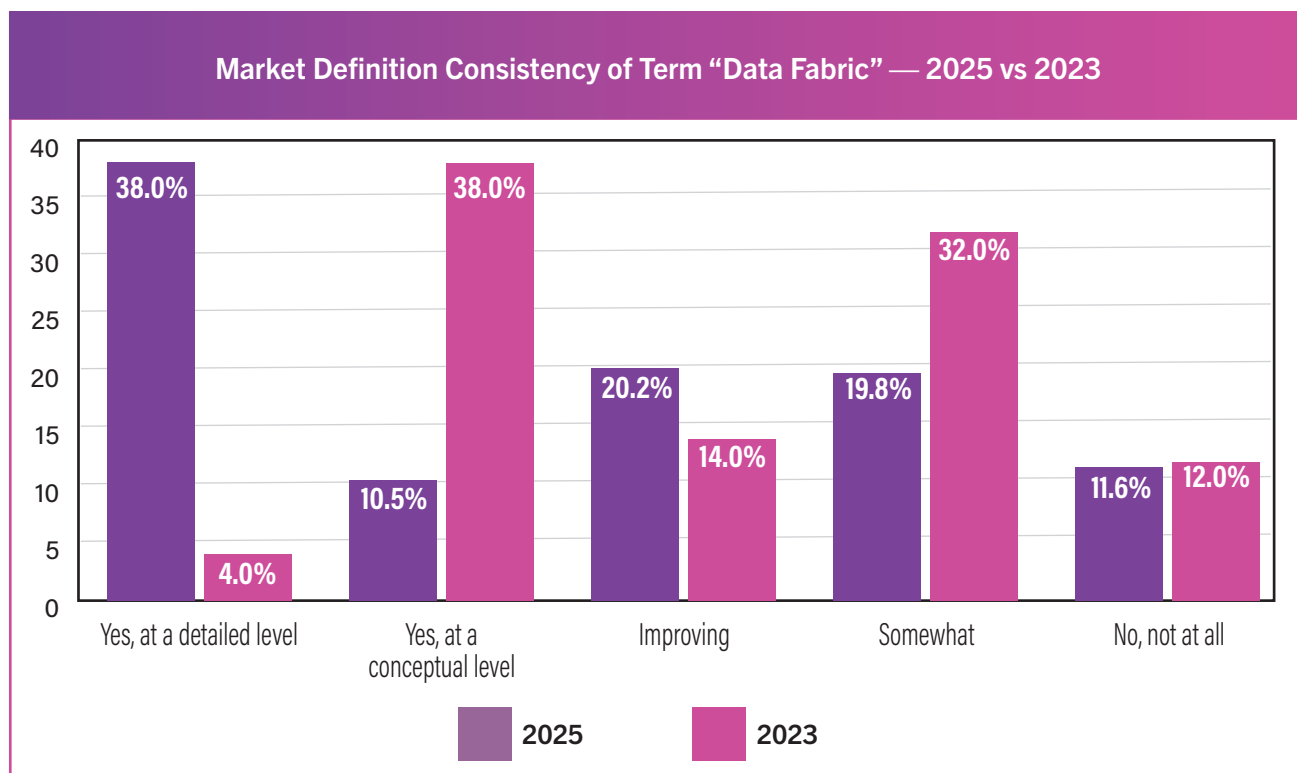


Figure 23. Do you think the definition of “Data fabric” is well understood and consistent in the industry?

Organizational impressions reflect market uncertainty. While positive impressions for IT data management rose from 30.0% to 35.8%, risk perceptions increased from 8.0% to 13.2%, and dismissive attitudes grew from 2.0% to 3.9%. Neutral evaluations fell from 47.0% to 33.5%, indicating that organizations are developing more definitive opinions, but those opinions are increasingly polarized rather than universally positive.

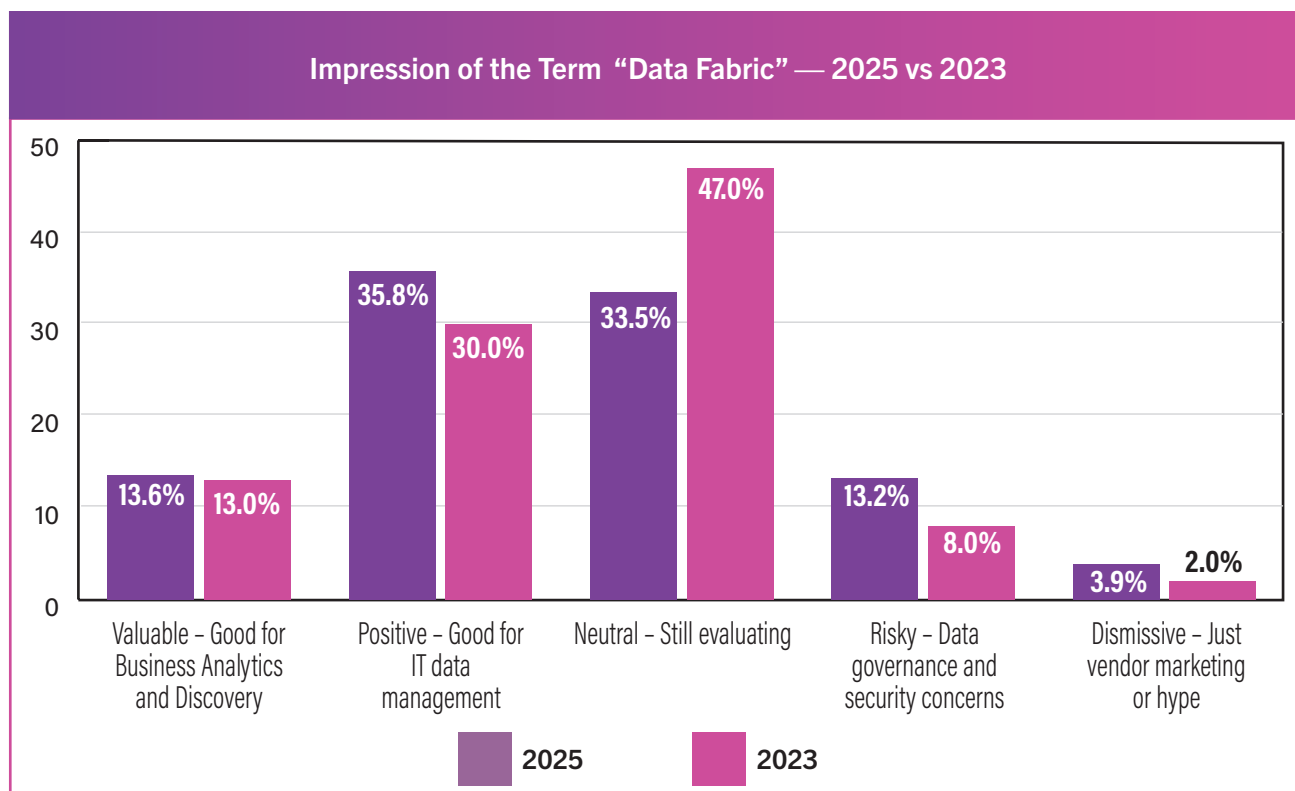


Figure 24. What is your general impression of the “Data Fabric” architecture?

Implementation challenges reveal new technical barriers that weren’t apparent in 2023. Knowledge graph adoption and proficiency became a concern affecting 33.2% of organizations—a challenge not measured in earlier surveys. Traditional concerns show mixed patterns: migration from legacy architecture rose from 36.0% to 40.2%, while data governance and security concerns fell from 33.0% to 30.5%. Encouragingly, unfamiliarity with implementation challenges decreased from 26.0% to 18.5%, suggesting that the remaining organizations have a more realistic understanding of what Data Fabric implementation requires.



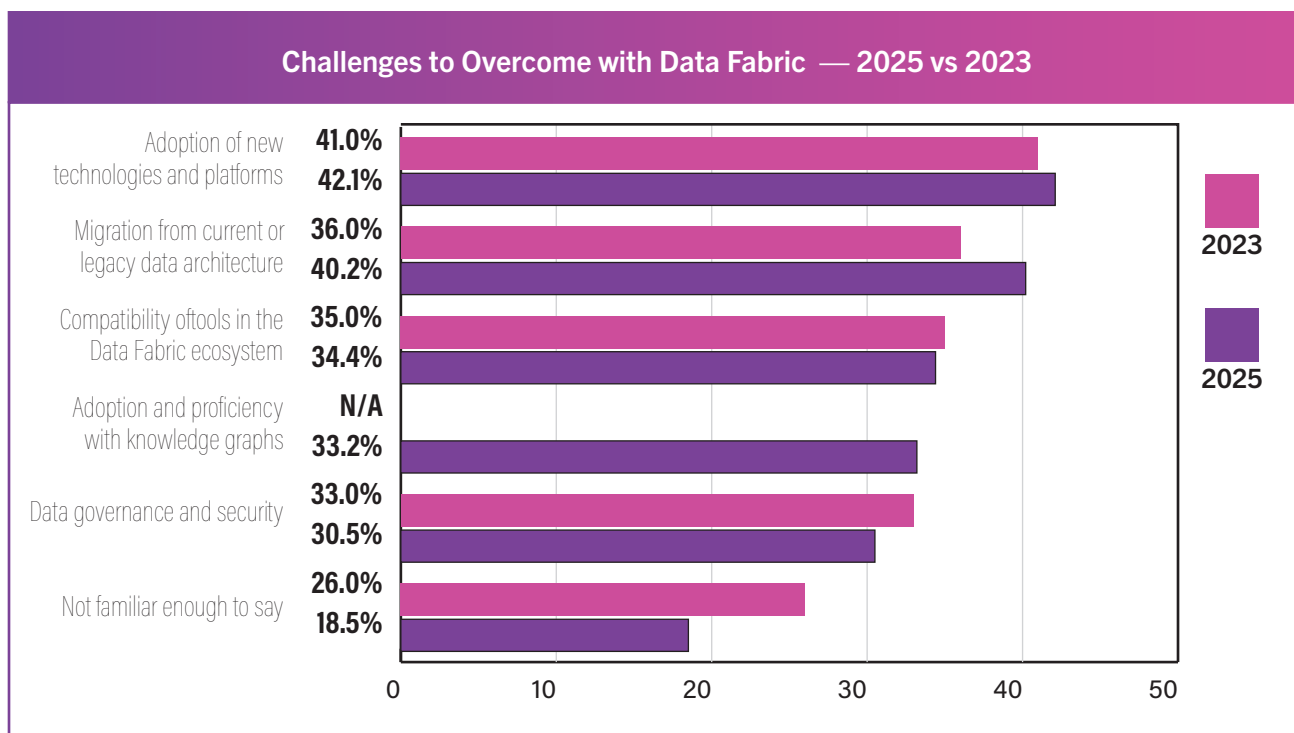


Figure 25. What do you think are the challenges that a Data Fabric initiative will have to overcome? (Click all that apply)

Business value expectations show both refinement and concern. Several AI-enhanced categories emerged in 2025 that weren't measured in 2023, including enhanced data governance and security with AI at 33.2% and utilizing AI for insights about data semantics and usage at 24.3%. However, traditional value propositions fell across measured categories: reducing data silos decreased from 42.0% to 33.6%, improved data management and quality with AI dropped from 39.0% to 30.5%, and enabling broader analytics declined from 32.0% to 23.2%.

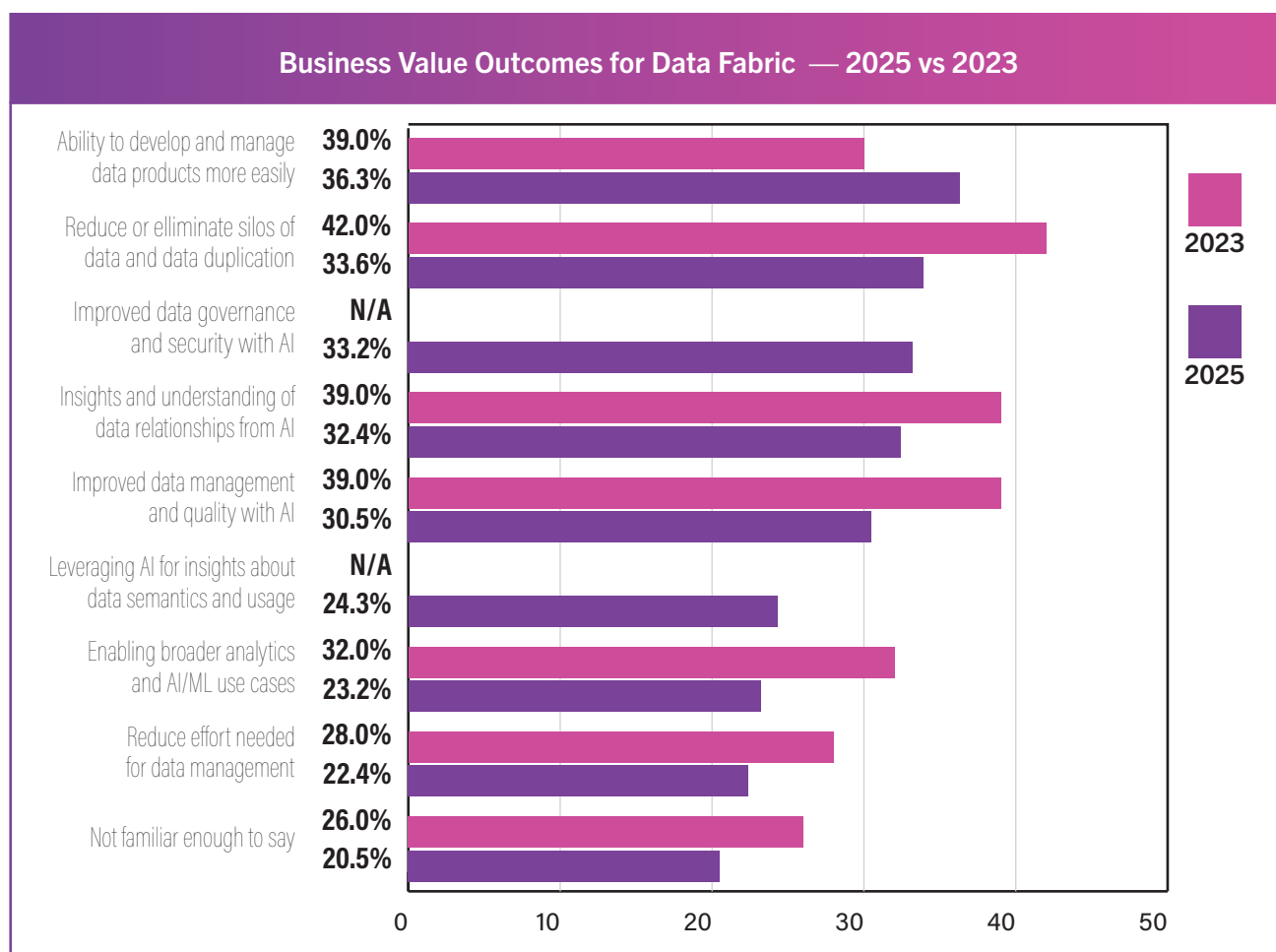


Figure 26. What do you believe are the business value outcomes of a Data Fabric initiative? (Click all that apply)

Critical correlations reveal that organizations are grappling with the complexity of implementation versus strategic value. The emergence of knowledge graph challenges (33.2%) aligns with organizations developing a detailed understanding (38.0%), suggesting that deeper engagement uncovers technical barriers that weren't initially apparent. The increase in AI-enhanced governance expectations (33.2%) corresponds with those viewing Data Fabric positively for IT data management (35.8%), indicating that technical teams recognize specific capabilities while struggling with broader implementation.

For data leaders, these evolution patterns suggest that Data Fabric is undergoing a market correction, as described by technology adoption frameworks, following an initial period of enthusiasm. The combination of declining active involvement, increasing unfamiliarity, and emerging barriers related to knowledge graphs indicates that this technology is facing adoption headwinds. Organizations should approach Data Fabric initiatives with caution, ensuring they have sufficient expertise in knowledge graph technologies and maintaining realistic expectations regarding implementation complexity.

## Streaming Data & Real-time Analytics: Strategic Market Maturation Analysis

The Streaming Data & Real-time Analytics market positioning reveals a data architecture and technology experiencing healthy maturation between 2023 and 2025. Active involvement increased from 19.0% to 22.9%, while organizations currently researching maintained high levels, growing slightly from 42.0% to 44.2%. This sustained research activity, combined with increased active involvement, suggests continuous market expansion as new organizations enter evaluation while others advance to implementation. Educational needs increased from 15.0% to 20.2% for conferences and webinars, while overall unfamiliarity decreased with those who have heard of it but don't understand dropping from 18.0% to 8.1%.

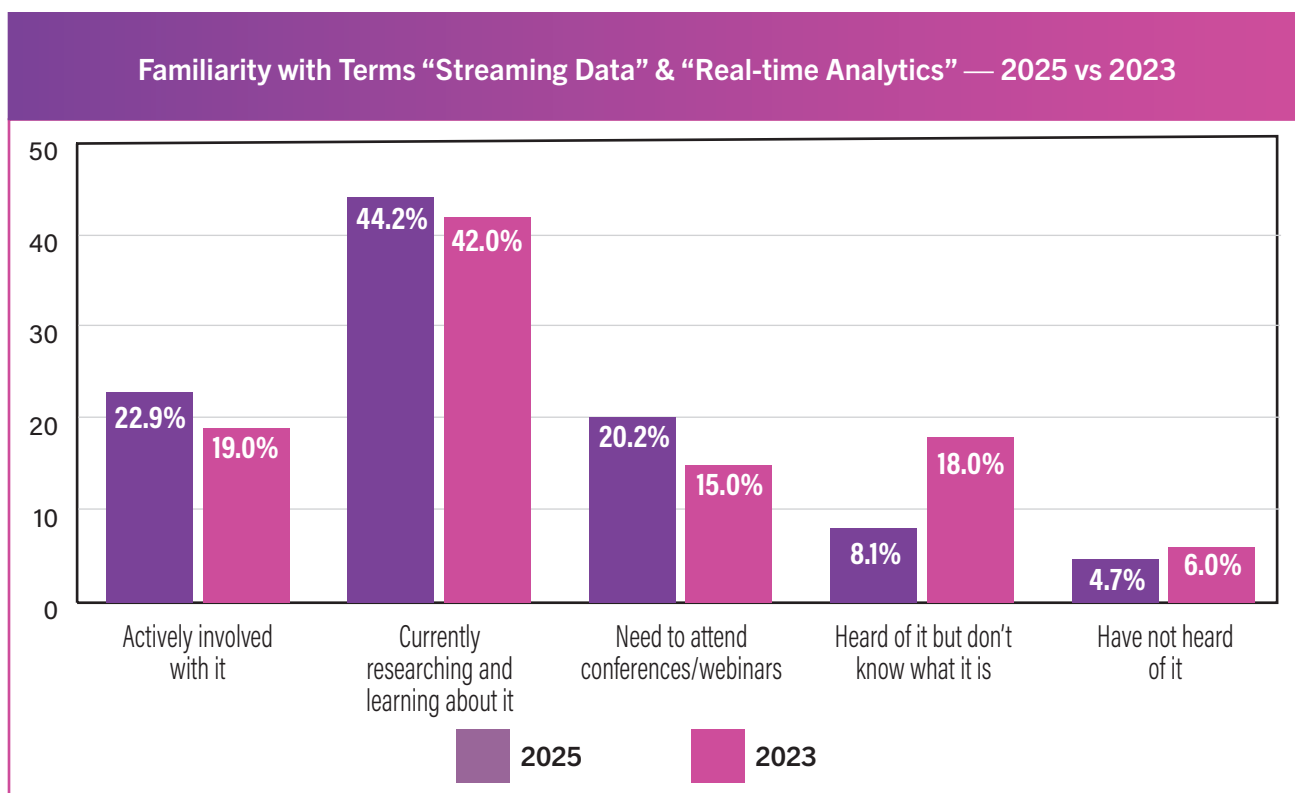


Figure 27. What is your familiarity with the terms “Streaming Data” and “Real-time Analytics”?

The most compelling evidence of market sophistication appears in the evolution of definitional understanding, mirroring the pattern observed in Data Lakehouse. Organizations demonstrating a detailed understanding increased dramatically from 12.0% to 38.0%—more than tripling—while conceptual understanding decreased from 35.0% to 10.5%. This transformation indicates that organizations have moved beyond surface-level awareness to develop practical implementation expertise through direct experience.

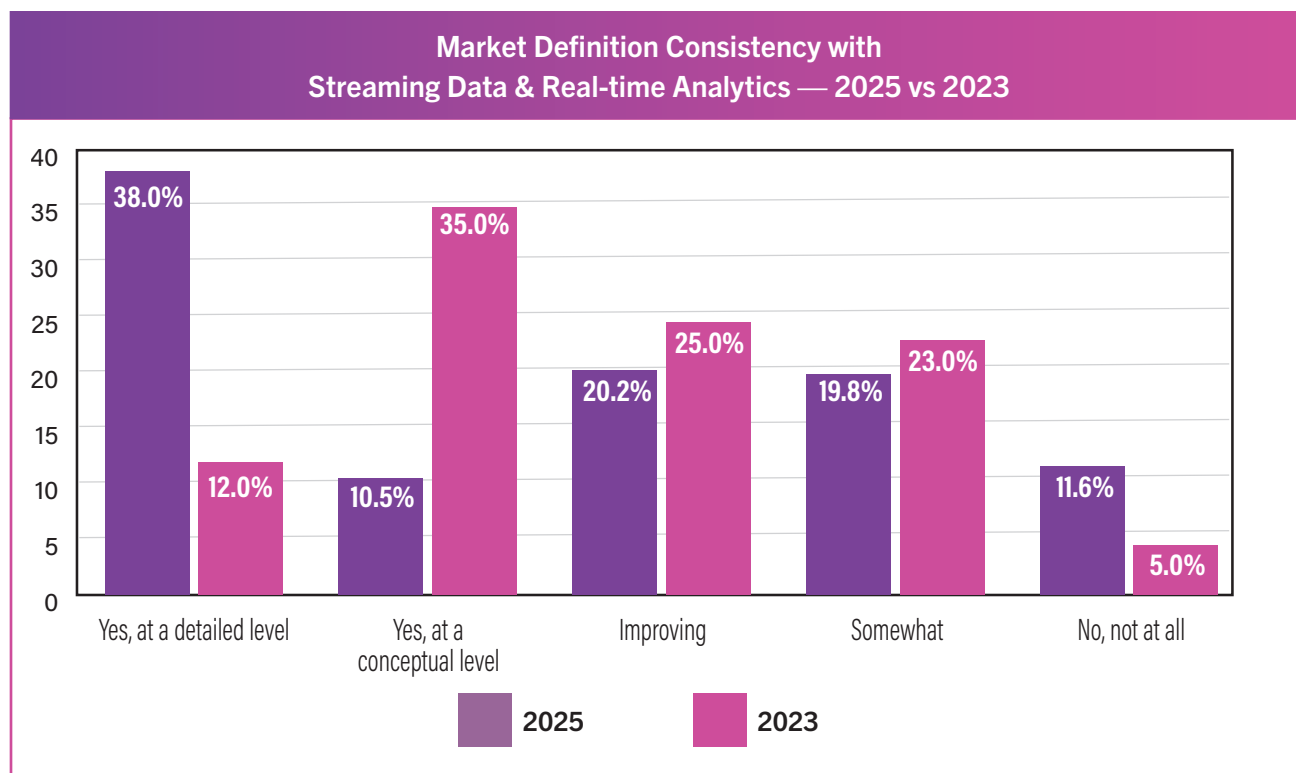


Figure 28. Do you believe the definitions of “Streaming Data” and “Real-time Analytics” are well understood and consistent in the industry?

Organizational impressions indicate decisive opinion formation. Neutral evaluations decreased from 47.0% to 33.5%, whereas positive impressions regarding IT data architecture rose from 31.0% to 35.8%. Risk perceptions saw a moderate increase from 9.0% to 13.2%, and dismissive attitudes grew from 1.0% to 3.9%. This suggests that while most organizations form positive opinions, those with implementation experience acknowledge legitimate complexity concerns.

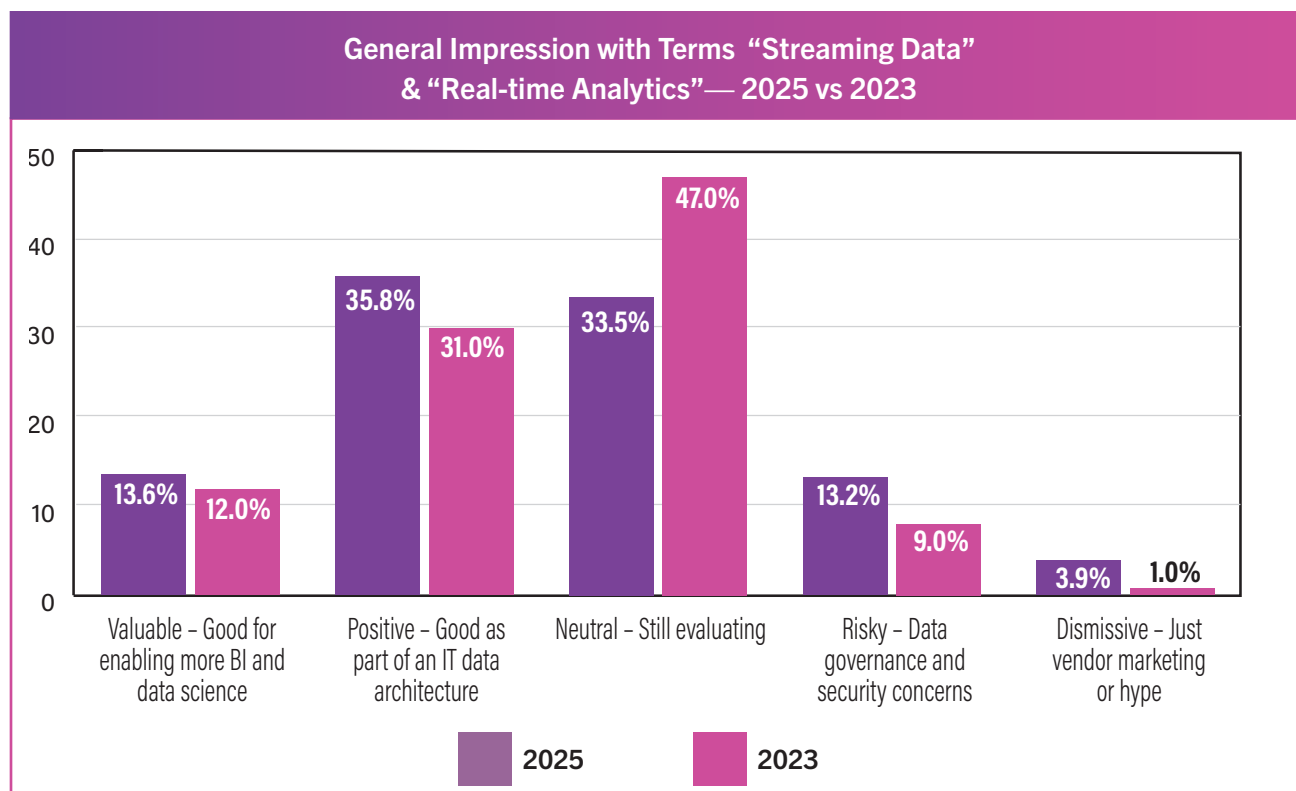


Figure 29. What is your general impression of the “Streaming Data” and “Real-time Analytics” architectures?

Implementation challenges reveal a sophisticated evolution in organizational understanding. The most substantial development is the emergence of “solving complex use cases involving real-time integration with historical data” as the leading challenge at 47.5%—a concern that wasn’t measured in 2023. Traditional volume-related challenges decreased dramatically from 55.0% to 31.7%, while database selection issues declined from 51.0% to 38.6%. This shift indicates that organizations have largely addressed basic streaming data ingestion problems but now grapple with more sophisticated architectural integration requirements.

### Challenges to Overcome for Streaming Data & Real-time Analytics — 2025 vs 2023

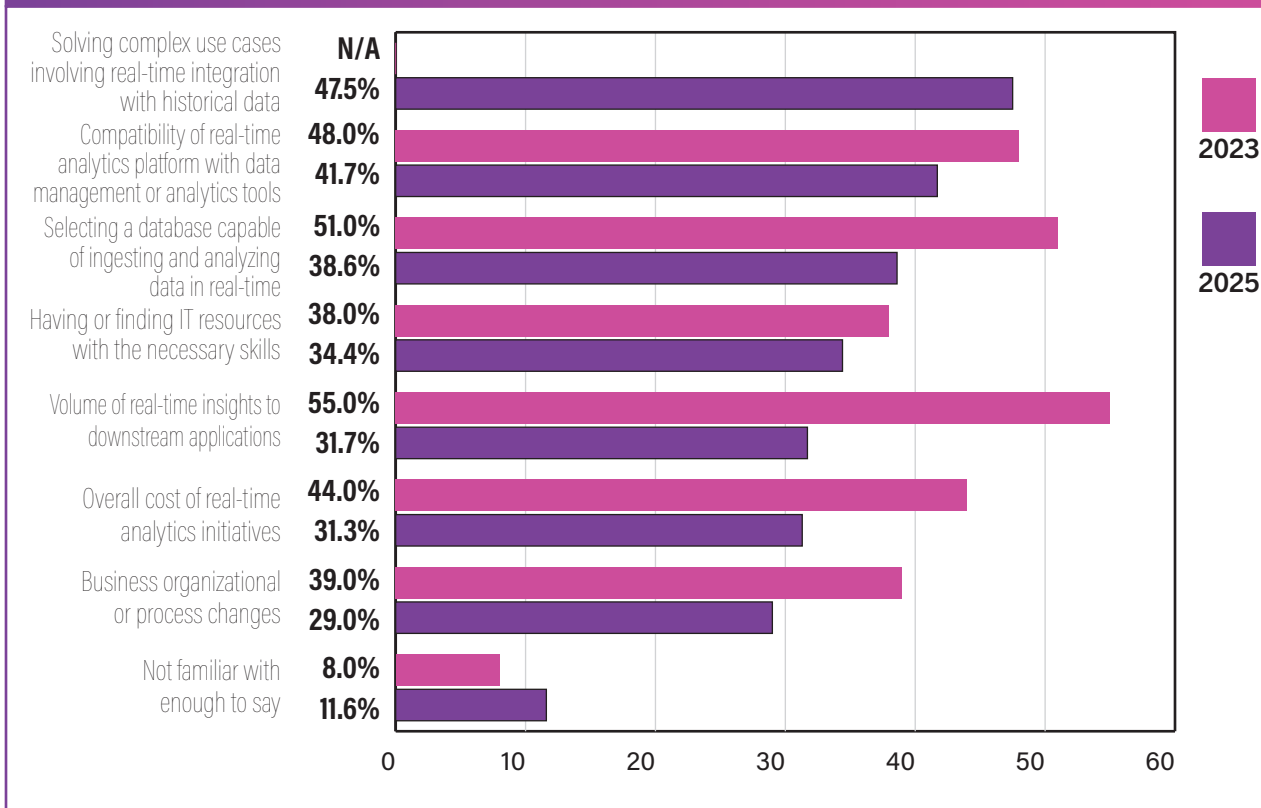


Figure 30. What do you believe are the challenges that the “Streaming Data” and “Real-time Analytics” initiatives will have to overcome? (Click all that apply)

Business value expectations exhibit moderated outcomes across most categories, although survey design effects may influence these apparent declines. Core real-time capabilities decreased from 56.0% to 48.3% for enhanced analytics and insights, while predictive analytics expectations dropped from 58.0% to 36.7%. However, operational efficiency demonstrated strong performance with only a slight decline from 43.0% to 41.3%, and the ability to develop real-time data products fell from 46.0% to 36.3%. Industry transformation expectations increased slightly from 19.0% to 20.5%, while unfamiliarity with value outcomes grew from 2.0% to 10.8%.

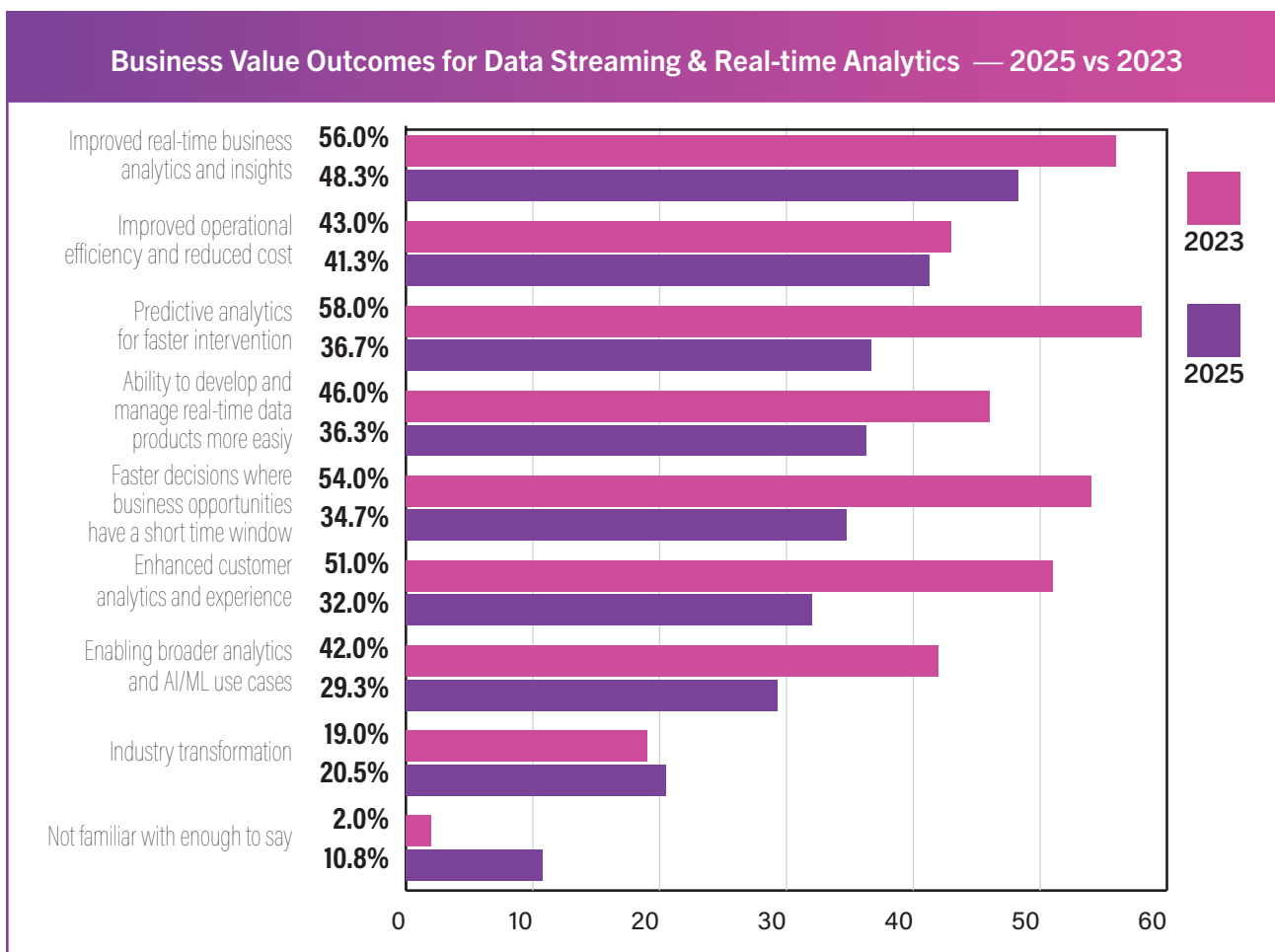


Figure 31. What do you believe are business value outcomes for “Streaming Data” and “Real-time Analytics” initiatives? (Click all that apply)

Critical correlations reveal that organizations transitioning from theoretical enthusiasm to practical integration are focusing their efforts. The emergence of historical data integration challenges (47.5%) corresponds with organizations that have developed a thorough understanding (38.0%), suggesting that deeper implementation exposes architectural complexities that are not apparent in initial deployments. The sustained high level of research activity (44.2%), combined with a decrease in neutral evaluations (33.5%), indicates that organizations are making more definitive assessments based on practical evaluation rather than extended theoretical consideration.

For data leaders, these evolution patterns indicate that Streaming Data Platforms & Real-time Analytics have successfully progressed through initial adoption phases toward operational maturity. The combination of a deeper understanding, reduced fundamental infrastructure concerns, and a focus on integration complexity suggests that organizations should approach streaming initiatives with confidence in their foundational capabilities while prioritizing architectural planning for historical data integration. Success will increasingly depend on addressing complex use cases that bridge real-time and batch processing rather than merely implementing streaming infrastructure.



## Semantic Layer & Search: Strategic Market Analysis

The market positioning of Semantic Layer & Search reveals a technology and data architecture component in the active evaluation phase, with 36.0% of organizations currently researching and learning about implementation approaches, while 28.3% report active involvement. This research-heavy engagement pattern indicates that organizations recognize its strategic importance but remain cautious about full commitment. The educational need is substantial, as 21.3% require conferences and webinars for a deeper understanding, while only 14.4% express limited awareness or unfamiliarity with the concept.

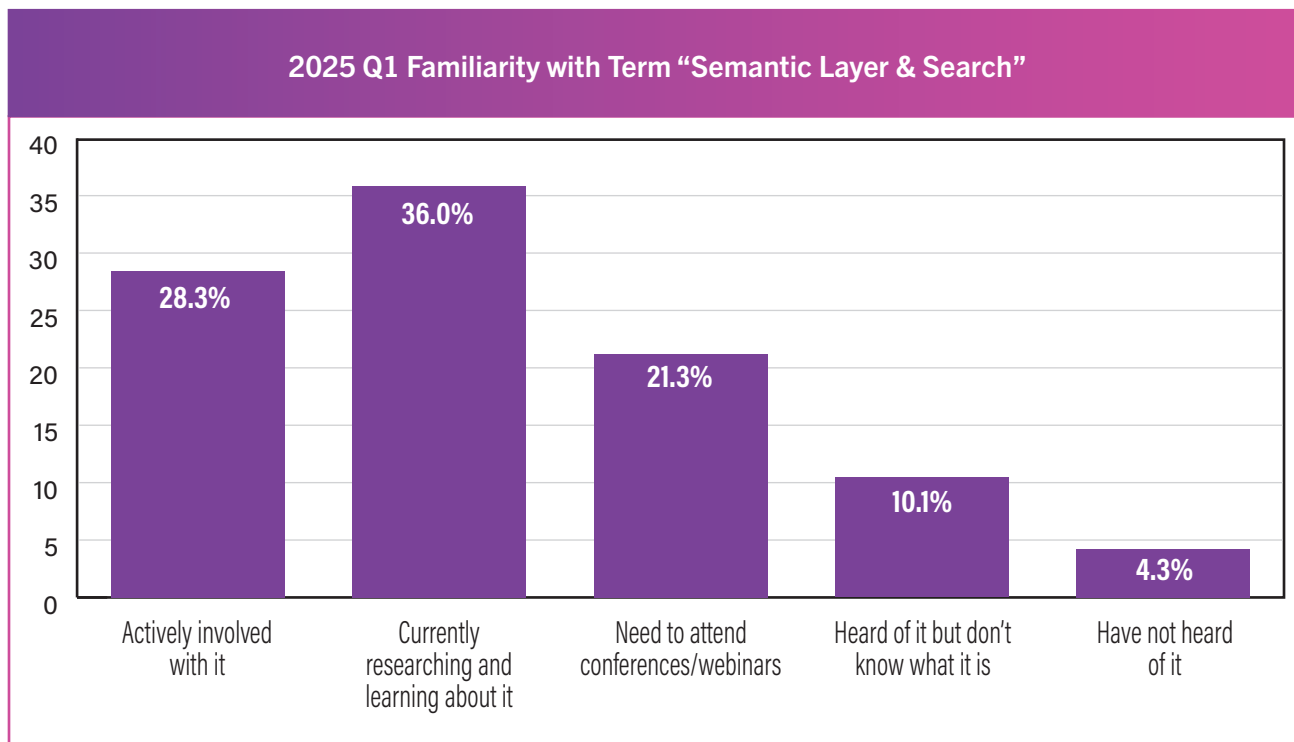


Figure 32. What is your familiarity with the term “Semantic Layer and Search”?

Organizational impressions reflect this evaluative stance, with sentiment evenly divided between a positive assessment of IT architecture (33.7%) and a continued neutral evaluation (33.3%). Notably, only 20.2% view Semantic Layer as valuable for enabling BI and AI use cases, suggesting that organizations struggle to articulate clear business value propositions. Risk perceptions remain moderate at 10.5%, while dismissive attitudes are minimal at 2.3%, indicating a genuine organizational interest rather than skepticism.

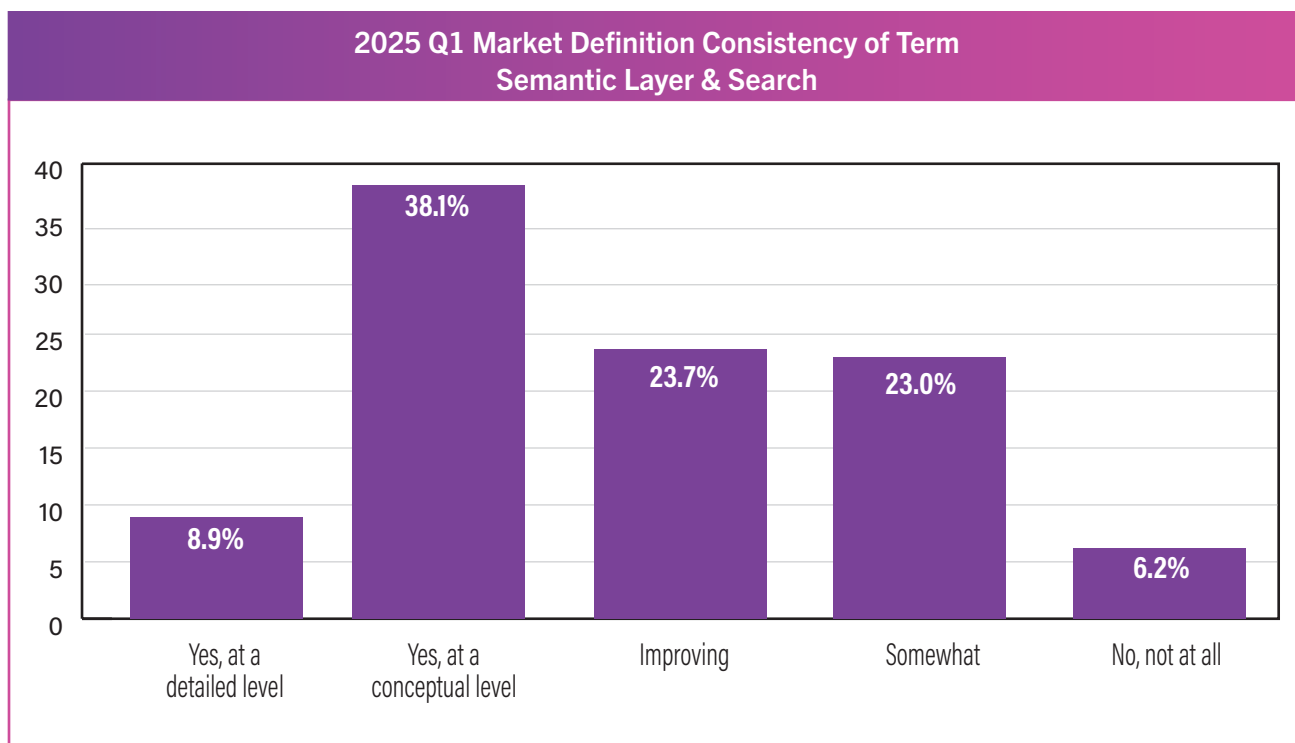


Figure 33. Do you think the definition of “Semantic Layer and Search” is well understood and consistent in the industry?

Implementation challenges reflect this uncertainty in knowledge. Integration or embedding with existing tools raises concerns at 39.4%, closely followed by the difficulty of finding skilled semantic modeling resources at 39.0%. Notably, 23.9% remain unfamiliar with implementation challenges—nearly triple GenAI’s 7.7%—indicating market education needs before widespread adoption.

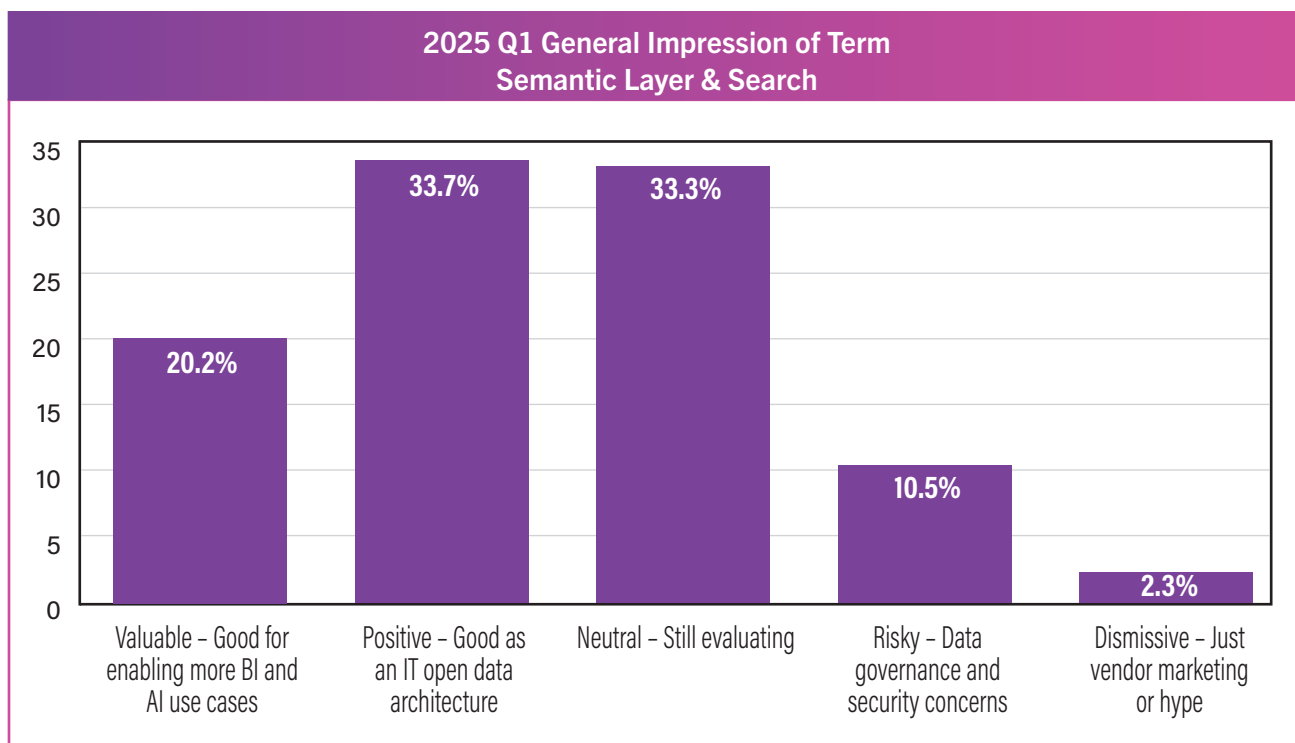


Figure 34. What is your general impression of the “Semantic Layer and Search” in data architecture?

The definitional understanding gap offers critical insight: while 38.1% express conceptual clarity, only 8.9% demonstrate detailed comprehension. This disparity suggests that organizations understand theoretical benefits yet lack the practical implementation knowledge needed for confident deployment decisions.

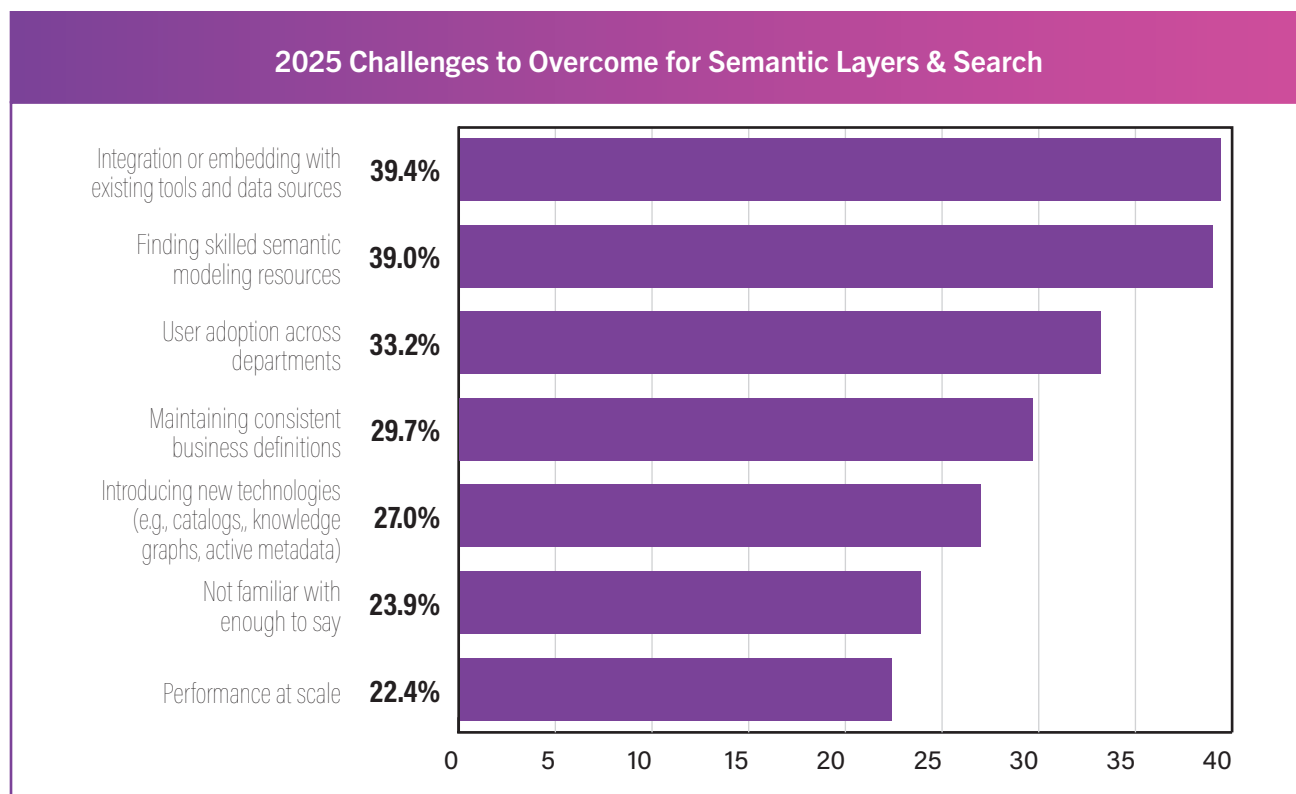


Figure 35. What do you think are the challenges that a Semantic Layer initiative will have to overcome? (Click all that apply)

The business value expectations indicate strong strategic alignment with AI initiatives. Enhancing GenAI with metadata and semantics context leads at 37.8%, establishing Semantic Layer as a critical AI-enabling infrastructure rather than a standalone capability. Other outcomes focus on data product development (34.0%), governance improvement (33.2%), and operational efficiency (30.5%), yet 21.6% remain unaware of potential outcomes.

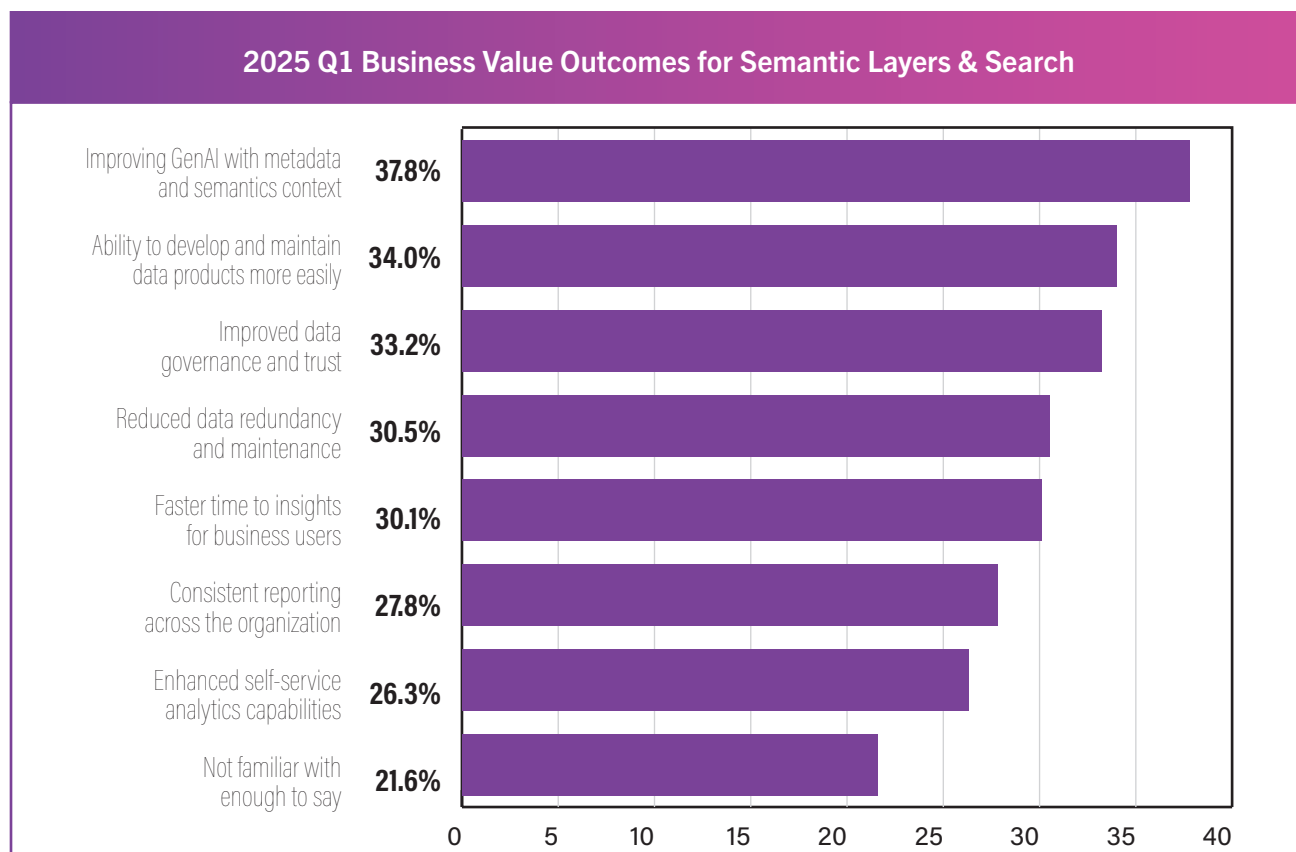


Figure 36. What do you believe are the business value outcomes of a Semantic Layer initiative? (Click all that apply)

Critical correlations emerge between market uncertainty and implementation readiness. Organizations citing integration challenges (39.4%) align with those viewing the technology positively for IT architecture (33.7%), suggesting that technical teams recognize value while struggling with practical deployment. The skills challenge (39.0%) corresponds with GenAI enhancement expectations (37.8%), indicating that organizations understand the Semantic Layer's AI-enabling potential but lack specialized talent for implementation.

For data leaders, these patterns indicate a technology and data architecture layer at a critical adoption threshold. While conceptual understanding and AI-enabling value propositions generate organizational interest, the gaps in detailed knowledge (8.9%) and implementation familiarity (23.9% unfamiliar with challenges) highlight the risks of premature deployment. Organizations should focus on skills development and vendor partnerships that offer implementation expertise instead of pursuing independent deployment based merely on conceptual understanding.

## Conclusion

The significant rise of GenAI and LLMs and their impact on enterprise data architecture show that leading data architecture trends are often adopted because they support AI-readiness. The survey framework presented here helps data leaders understand market shifts in organizational priorities, boosting confidence and planning for their decision-making.

## About Denodo



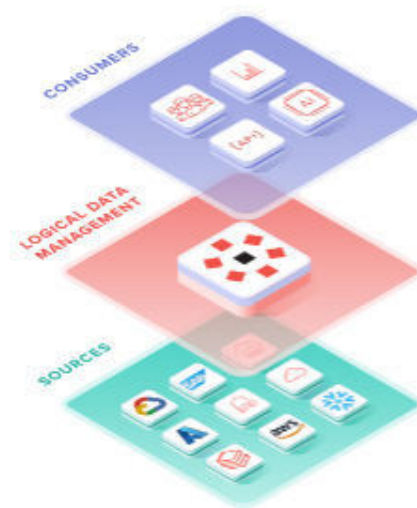
### Supercharging AI-Ready Data Architectures: How The Denodo Platform Accelerates GenAI and Data Democratization

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

# 2025 Market Study: Modern Data Architecture in the AI Era

## Summary:

### **Success & Results:**

With an ROI of over 400% and benefits worth millions, customers in large and medium-sized companies across over 30 industries saw their investments pay for themselves in less than six months. Read the proof in the report!

### **Recommendation:**

Read this report to learn these and many more details and receive a comprehensive blueprint for a data architecture that can support success in this challenging AI era.

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