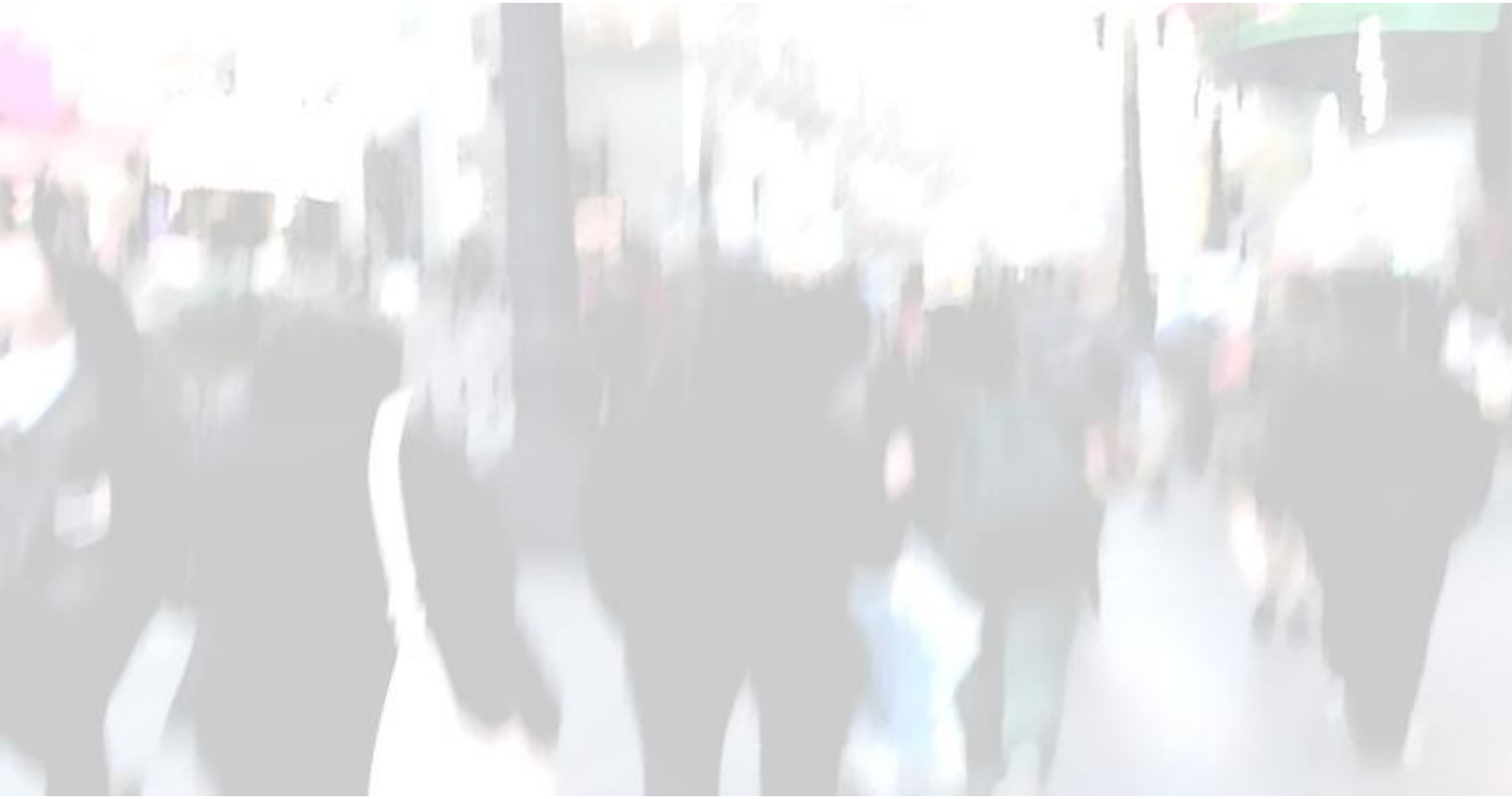
March 31, 2026

Dresner Advisory Services, LLC

2026 Edition

Semantic Layer and Data Virtualization Market Study

Wisdom of Crowds® Series



Disclaimer:

This report should be used for informational purposes only. Vendor and product selections should be made based on multiple information sources, face-to-face meetings, customer reference checking, product demonstrations, and proof-of-concept applications.

The information contained in all Wisdom of Crowds® Market Study Reports reflects the opinions expressed in the online responses of individuals who chose to respond to our online questionnaire and does not represent a scientific sampling of any kind. Dresner Advisory Services, LLC shall not be liable for the content of reports, study results, or for any damages incurred or alleged to be incurred by any of the companies included in the reports as a result of its content.

Definitions

Business Intelligence Defined

Business intelligence (BI) is "knowledge gained through the access and analysis of business information." Business Intelligence tools and technologies include query and reporting, online analytical processing (OLAP), data mining and advanced analytics, end-user tools for ad hoc query and analysis, and dashboards for performance monitoring.

Definition source: Howard Dresner, *The Performance Management Revolution: Business Results Through Insight and Action* (John Wiley & Sons, 2007)

Analytical Data Infrastructure Defined

An analytical data infrastructure (ADI) is the data workflow and technology ecosystem responsible for the ingestion, persistence, and transformation of data from source systems for downstream consumption by analysts and analytic workflows/use cases and AI agents. Architecturally, it is defined by a range of components which are available from a variety of vendors, with best-in-class components differing according to analytic data infrastructure architectures and use cases. Semantic layer and data virtualization are components of ADI applied to achieve specific architectures and use cases.

Semantic Layer Defined

For decades, organizations have struggled to achieve an aligned, consistent, and readily accessible view of critical data concepts spanning multiple applications, business processes, and platforms. Many terms have been applied to describe this goal, including data integration, logical data views, and more. More recent terminology associated with the technical capabilities of active data architecture®—such as data mesh, data fabric and data virtualization—has given momentum to the concept and term "semantic layer."

A semantic layer provides an application-independent view of data objects that are critical to the operation of the business. These views are readily accessible from a variety of applications and tools, making them available when and where needed for both operational and analytical use cases. The data presented via a semantic layer is semantically aligned—this means that differences in syntax and terminology across the various applications and structures from which the data is sourced have been rationalized into a consistent, understandable, and agreed-on format and meaning for optimal value at the point of consumption.

Data Virtualization Defined

Data virtualization is a style of data integration that creates consolidated views of data residing in multiple, disparate data sources. Unlike traditional data integration approaches such as ETL, data remains in place and is accessed in real time, combined into a consolidated view, and presented to requesting applications, BI tools or other points of consumption. Data virtualization does not attempt to impose a single data model on the data but rather allows for more of a “schema-on-read” approach, where various integrated views of the data can be presented to different consumers. Various abstraction and transformation techniques help to resolve differences in source and consumer formats and semantics. This concept and the related software are a subset of data integration and are commonly used within BI, service-oriented architecture data services, cloud computing, enterprise search, and master data management. This is becoming a foundational approach to implementing semantic layer concepts.

Introduction

As we mark the 19th anniversary of Dresner Advisory Services in 2026, we're pleased to present this year's edition of our Semantic Layer and Data Virtualization Market Study. We sincerely appreciate our clients' and subscribers' ongoing support and collaboration. Since our founding in 2007, we've remained committed to setting high standards, driving innovation, and increasing the value we deliver each year.

This year's study represents a significant evolution from our inaugural coverage of the semantic layer. We've completely updated our research criteria and expanded the scope to include data virtualization, reflecting how closely these two capabilities are aligned in practice. We also see both as key components of the broader analytical data infrastructure (ADI) ecosystem, and how central they're becoming to modern data architecture strategies. Many technology providers now position their capabilities as supportive of these goals, and in some cases are solely focused on their delivery.

We hope the insights in this report support your operational and strategic goals. Working on this study has been really worthwhile, and we look forward to continuing to serve you. Thank you to our clients, colleagues, and the broader community for your ongoing support.

We welcome the opportunity to engage further as you explore the study's findings.

Best,

Howard Dresner
Chief Research Officer
Dresner Advisory Services

Contents

Benefits of the Study

The 2026 Dresner Advisory Services Semantic Layer and Data Virtualization Market Study provides a wealth of information and analysis, offering value to both consumers and producers of business intelligence technology and services.

Consumer Guide

As an objective source of industry research, the Dresner Advisory Semantic Layer and Data Virtualization Market Study can help customers to understand how their peers leverage and invest in collaborative BI and related technologies. Using our unique vendor performance measurement system, users glean key insights into software supplier performance, which enables:

- Comparisons of current vendor performance to industry norms
- Identification and selection of new vendors

Supplier Tool

Vendor licensees use the Dresner Advisory Services Semantic Layer and Data Virtualization Market Study in several important ways:

External Awareness

- Build awareness for business intelligence markets and supplier brands, citing Dresner Advisory Services Semantic Layer and Data Virtualization Market Study market trends and vendor performance.
- Gain lead and demand generation for supplier offerings through association with Dresner Advisory Services Semantic Layer and Data Virtualization Market Study brand, findings, webinars, etc.

Internal Planning

- Refine internal product plans and align with market priorities and realities as identified in the Dresner Advisory Services Semantic Layer and Data Virtualization Market Study
- Better understand customer priorities, concerns, and issues
- Identify competitive pressures and opportunities

About Howard Dresner and Dresner Advisory Services

The Dresner Advisory Services Semantic Layer and Data Virtualization Market Study Report was conceived, designed, and executed by Dresner Advisory Services, LLC—an independent advisory firm—and Howard Dresner, its president, founder and chief research officer.

Howard Dresner is one of the foremost thought leaders in business intelligence and performance management, having coined the term "business intelligence" in 1989. He has published two books on the subject, *The Performance Management Revolution – Business Results through Insight and Action* (John Wiley & Sons, Nov. 2007) and *Profiles in Performance – Business Intelligence Journeys and the Roadmap for Change* (John Wiley & Sons, Nov. 2009). He lectures at forums around the world and is often cited by the business and trade press.

Prior to founding Dresner Advisory Services, Howard served as chief strategy officer at Hyperion Solutions and was a research fellow at Gartner, where he led its business intelligence research practice for 13 years.

Howard has conducted and directed numerous in-depth primary research studies over the past three decades and is an expert in analyzing these markets.

Through the Wisdom of Crowds® Business Intelligence market research reports, we engage with a global community to redefine how research is created and shared. Other research reports include:

- Wisdom of Crowds® Flagship BI Market Study
- AI, Data and Analytics Governance
- AI Development Platforms
- Agentic AI Assisted Analytics
- Agentic AI Automation Platforms
- Analytical Data Infrastructure
- Analytical Data products
- Data Engineering
- ModelOps

You can find more information about Dresner Advisory Services at www.dresneradvisory.com.

The Dresner Team

About Elizabeth Espinoza
Elizabeth is director of analytics at Dresner Advisory and is responsible for the data preparation, analysis, and creation of charts for Dresner Advisory reports.

About Sherry Fairchok
Sherry is senior editor at Dresner Advisory, ensuring the quality and consistency of all research publications.

About Danielle Guinebertiere
Danielle is vice president of client services at Dresner Advisory. She supports the ongoing research process through her work with executives at companies included in Dresner market reports.

About Michelle Whitson-Lorenzi
Michelle is director of research operations and is responsible for managing software company survey activity and our internal market research data.

Survey Method and Data Collection
As with all our Wisdom of Crowds® market studies, we constructed a survey instrument to collect data and used social media and crowdsourcing techniques to recruit participants.

Data Quality
We carefully scrutinized and verified all respondent entries to ensure that only qualified participants were included in the study.

Executive Summary

Executive Summary

Strategic Importance and Market Trajectory

- Increasingly Visible Components of ADI: Organizations are modernizing analytical data infrastructure to support complex BI and AI initiatives. [see "Special Report: The State of Analytic Data Infrastructure in 2026"]. Buyers increasingly expect capabilities that support semantic layer use cases, often based on virtualized approaches to integrating data, as part of comprehensive analytical data infrastructure (ADI) offerings. Semantic layer and data virtualization enable organizations to better address modern use cases that require on-demand, consistent and controlled views of data drawn from diverse data sources.
- Early Adoption Across ADI Use Cases: Only a minority of organizations indicate that semantic layer and data virtualization are important capabilities consistently across every ADI use case, suggesting that these concepts remain early in the adoption cycle. However, several use cases show substantial connection to semantic layer and data virtualization, pointing to the emerging relevance of these capabilities. Most notably, organizations identified these capabilities as important for executive dashboards, sales and revenue forecasting, and FP&A. However, a solid majority of organizations see semantic layer and data virtualization as important capabilities within the range of ADI components.

Market Adoption and Sourcing Strategies

- Limited But Growing Adoption: A minority of organizations deploy semantic layer and data virtualization today. With significant expansion planned over the next two years, adoption will reach soon reach a majority of the market. Current adoption is most mature in North America and EMEA, specifically within the healthcare, manufacturing, and consumer services sectors.
- Vendor Selection and Sourcing Preferences: The market reflects a clear preference for best-of-breed sourcing, though the ability to integrate with a strategic ADI platform remains a common requirement. Preferences vary by geography, industry and organization size, making a variety of sourcing approaches relevant in the future.

Objectives and Use Cases

- Achieving Consistency of Data Views: The top priority among all other goals is ensuring consistent business definitions across BI and AI tools and applications. A majority of organizations consider this a critical driver for semantic layer and data virtualization. Other common objectives include simplifying data access for business users, improving governance and trust, and enabling self-service analytics.

- Broad Applicability Across BI, Analytics and AI Use Cases: A majority of organizations prioritize use cases related to executive dashboards and KPI reporting, sales and revenue forecasting, financial planning and analysis, marketing attribution and supply chain optimization. Overall, this indicates the great diversity of use cases in which semantic layer and data virtualization can deliver value.

Features and Integration

- Expected Core Functionality: Users perceive the ability to integrate with various data sources and the availability of APIs and connectors as the highest priority, followed closely by functionality to create and manage calculated measures and support for multidimensional models. The market's attention to these top four features is a clear mandate for technology providers' continued investment in these areas.
- Importance of Integration Within the ADI Ecosystem: Users are also focused on the manner in which these capabilities can be integrated with other ADI components, various data sources, other types of systems, and more. Expected integration techniques include data federation/virtualization, identity and access management integration, SQL query interfaces, cloud-native integration, and API-based integration.

Deployment and Licensing

- Strong Shift to Cloud: As with all other ADI use cases and components, organizations implementing semantic layer and data virtualization show a strong preference for cloud-based deployment options, either public, private or hybrid. Platform-independent approaches and on-premises deployments represent lesser (and likely declining) areas of demand.
- Range of Licensing Approaches Required: While no single licensing option is preferred by a majority of organizations, respondents indicated user-based licensing is most attractive. Computing resources consumed and concurrent use are also popular options. Preferences in licensing approach vary significantly across geographies and organization sizes.

Study Demographics

Study Demographics

Study participants provide a cross-section of responses across geographies, functions, organization sizes, and vertical industries. We constructed cross-tab analyses to identify and illustrate important industry preference, priorities, and trends in the data.

Geography

North America, which includes the United States, Canada, and Puerto Rico, represents the largest group of respondents (at 53%), followed by EMEA (23%). Asia Pacific and Latin America account for the balance (25%) of respondents (**Error! Reference source not found.**).

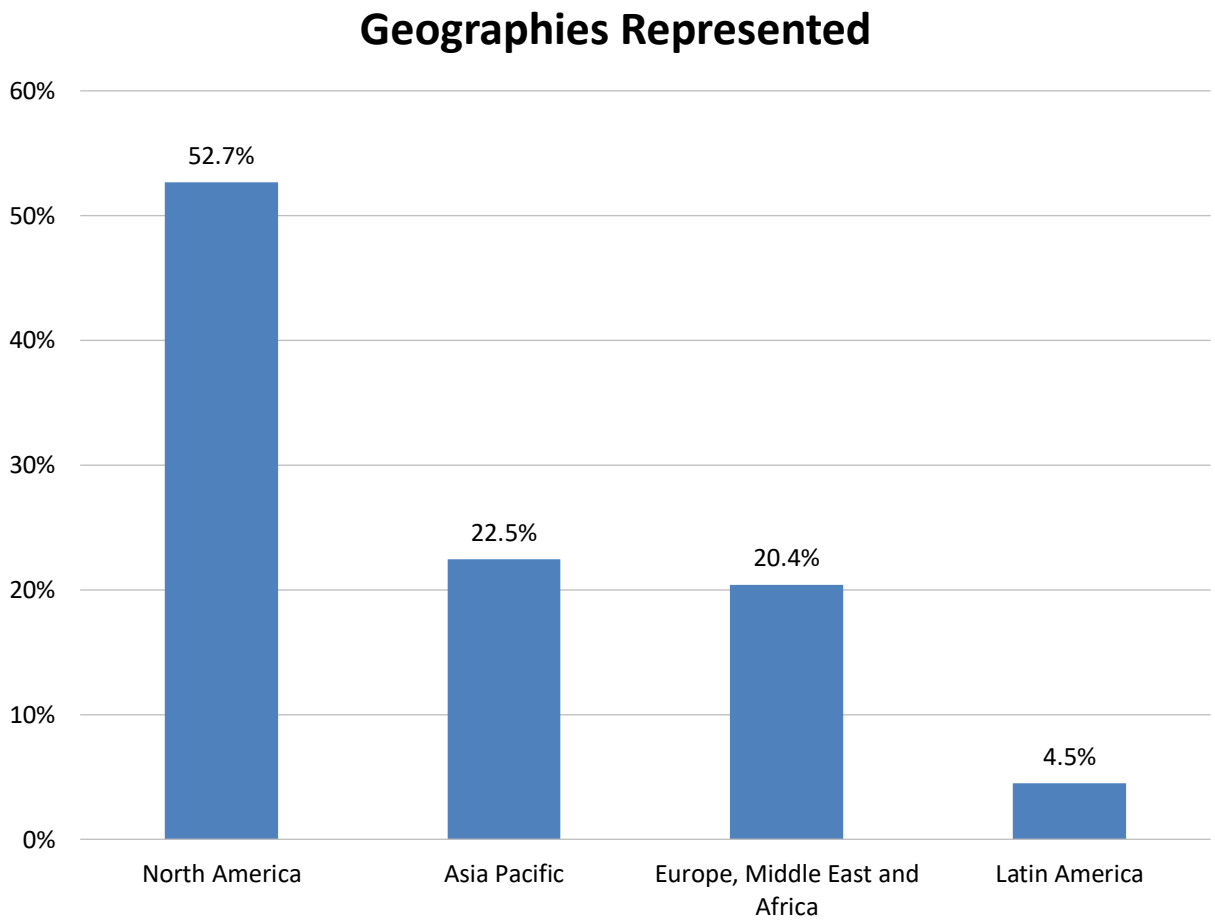


Figure 1 -- Geographies Represented

Functions

In 2026, respondents from IT functions account for 38% of our sample, followed by the Business Intelligence/Analytics Competency Center (BICC) at 19% of the respondents (fig. 2). Together, these two functions make up a majority of the sample, at an aggregate 57%. The remainder of respondents represent a wide variety of functions including data science, R&D, finance, operations, executive management and more.

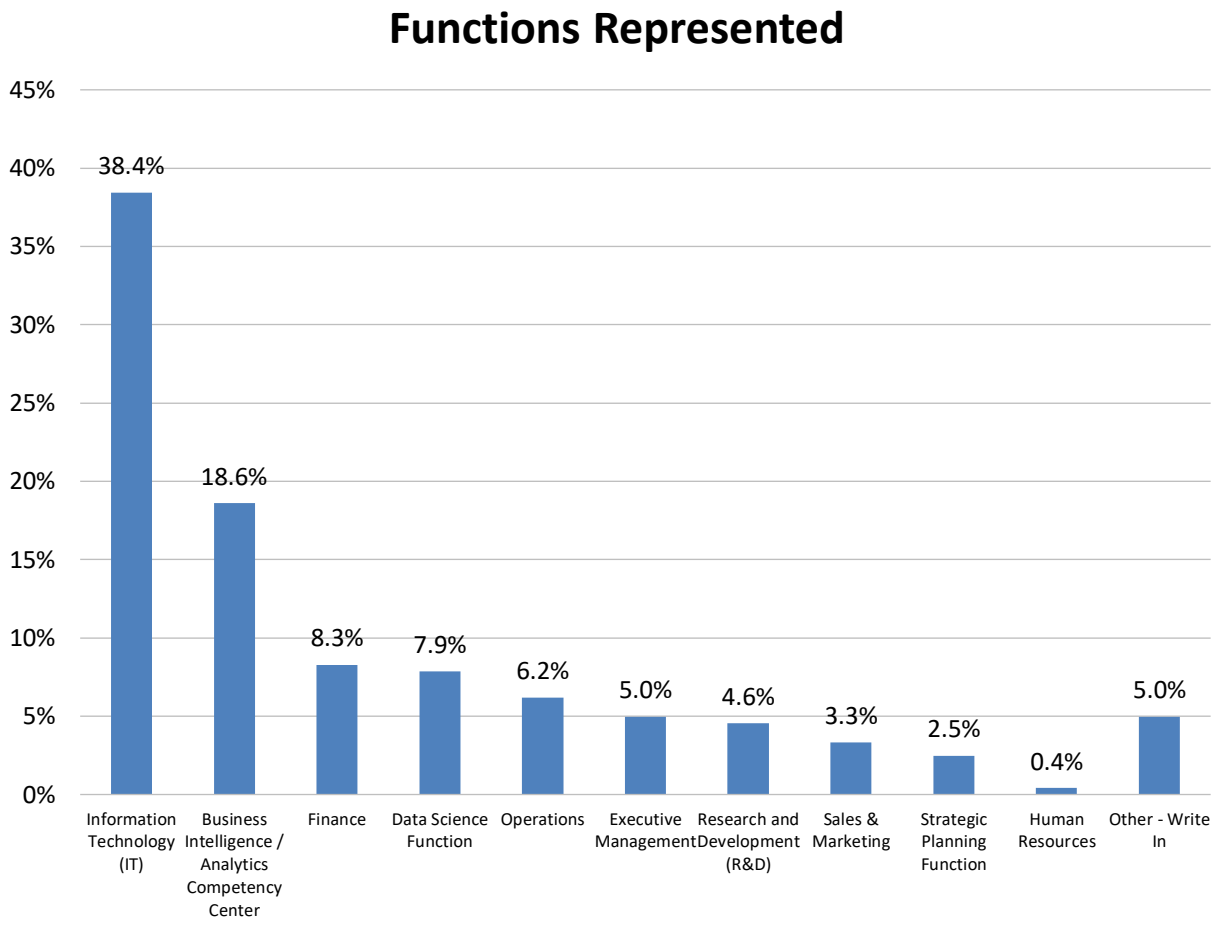


Figure 2 - Functions Represented

Vertical Industries

In 2026, business services (which includes consulting, telecommunications, and transportation) leads the vertical industry distribution of respondents at 23% (fig. 3), followed by manufacturing (19%), financial services and technology (15% each), and consumer services (8%). A range of other industries rounds out the sample, each representing 5% or less.

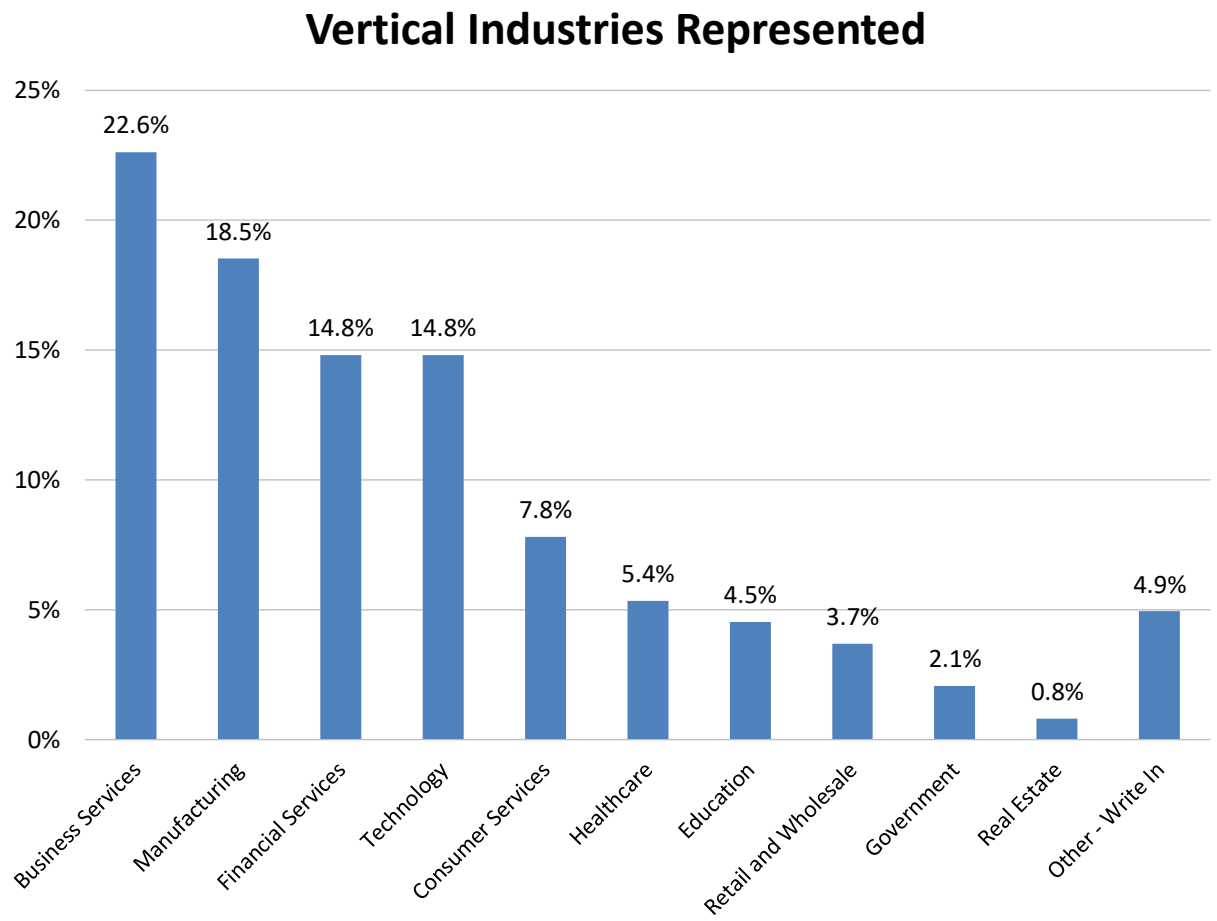


Figure 3 -- Vertical Industries Represented

Organization Size

In 2026, our survey includes small organizations (1-100 employees), midsize organizations (101-1,000 employees), large organizations (more than1,000 employees) and very large organizations (over 10,000 employees). This year, small organizations account for 20% of our sample, midsize organizations account for 26%, and organizations with 1,001-10,000 employees account for 27% (fig. 4). Twenty-seven percent of the respondents are from organizations with more than 10,000 employees.

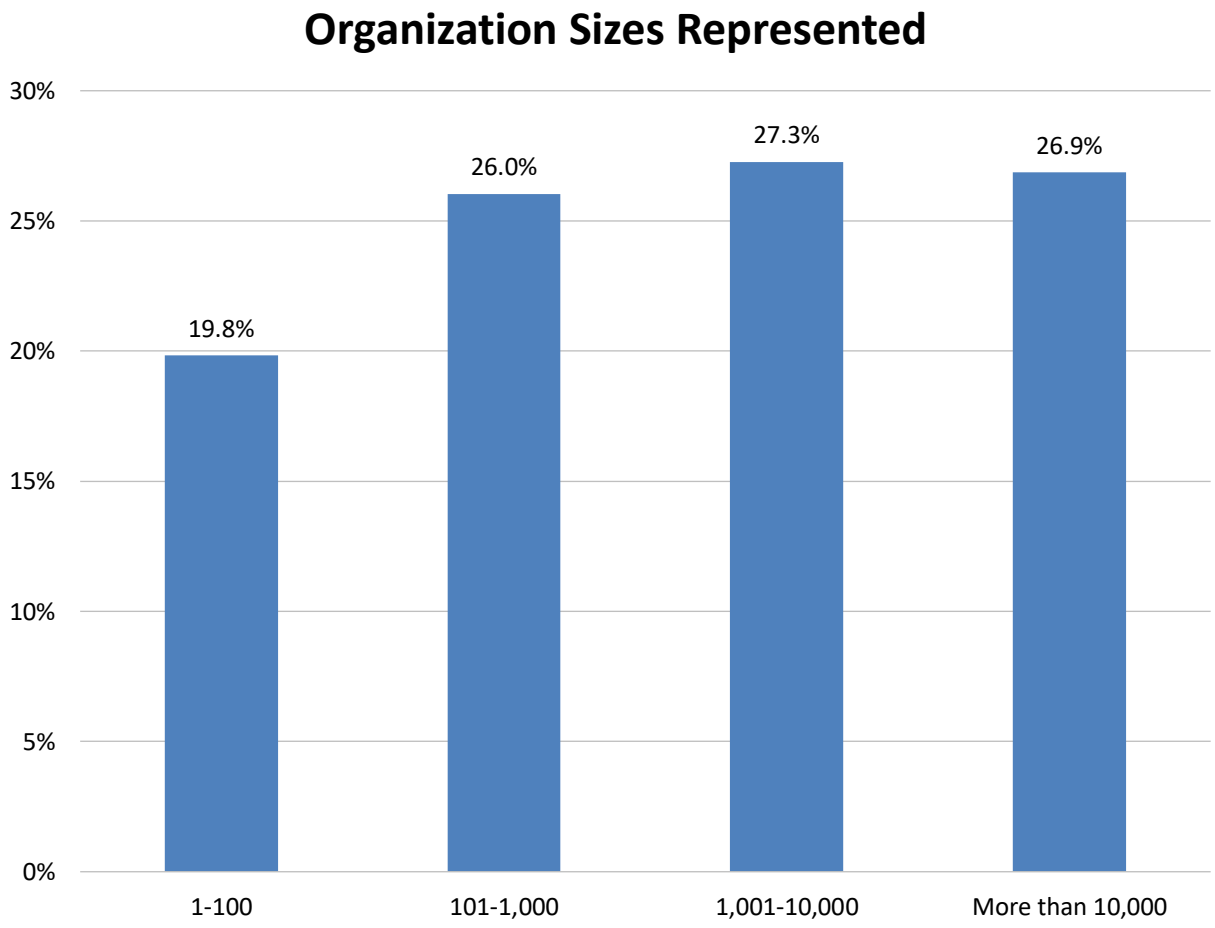


Figure 4 – Organization Sizes Represented

Analysis & Trends

Analysis and Trends

Semantic Layer and Data Virtualization Relative Importance in ADI

Buyers increasingly expect capabilities that support semantic layer use cases, often based on virtualized approaches to integration data, as part of comprehensive analytical data infrastructure (ADI) offerings. Semantic layer and data virtualization enable organizations to better address modern use cases that require on-demand, consistent and controlled views of data drawn from diverse data sources. As more organizations rebalance the composition of their critical data flows, shifting from default approaches of physical and point-in-time data movement (via ETL) toward more real-time and virtualized techniques, these capabilities become much more critical and valuable, with 61% of respondents indicating they perceive semantic layer and data virtualization as important (fig. 5).

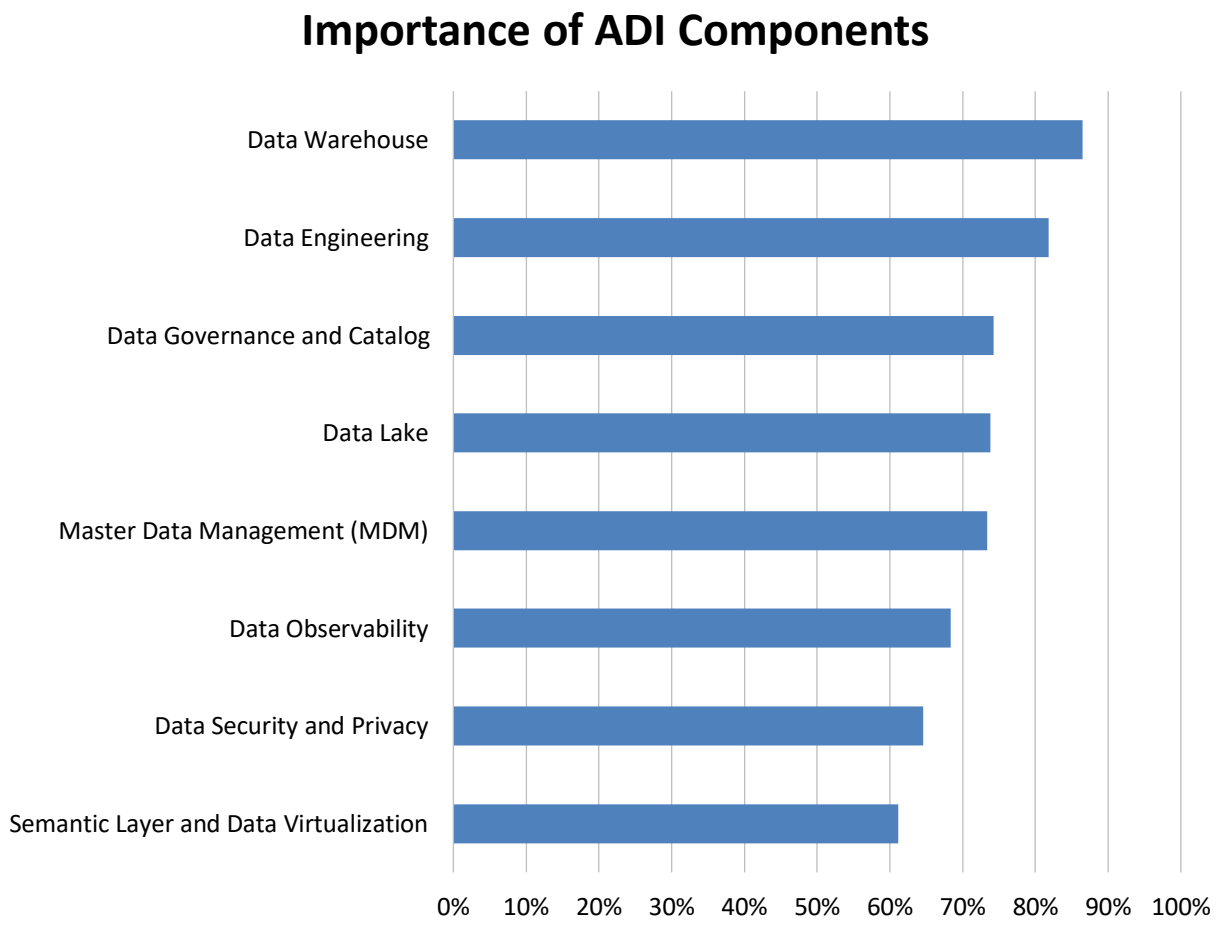


Figure 5 -- Importance of ADI Components

The small number of organizations indicating that semantic layer and data virtualization are important capabilities for all ADI use cases suggests that these concepts remain early in the adoption cycle. However, several use cases show substantial connection to semantic layer and data virtualization, pointing to the emerging relevance of these capabilities. Thirty-three percent of organizations identified these capabilities as important for executive dashboards, 28% say they are important for sales and revenue forecasting, and 26% say they are important for FP&A (table 1). True to semantic layer and data virtualization's value, these use cases generally require combinations of data from diverse sources. Twenty-five percent or fewer of respondents view these capabilities as important for the remaining use cases.

	Data Warehouse	Data Engineering	Data Governance and Catalog	Data Lake	Master Data Management (MDM)	Data Observability	Data Security and Privacy	Semantic Layer and Data Virtualization
Executive Dashboards & KPI Reporting	50.6%	46.4%	31.7%	27.4%	30.8%	30.8%	32.1%	32.9%
Churn Prediction & Customer Retention	44.3%	50.2%	25.7%	30.4%	23.6%	21.9%	27.4%	21.1%
Financial Planning & Analysis (FP&A)	48.5%	43.9%	33.3%	24.1%	29.1%	24.5%	26.6%	25.7%
Customer 360 & Personalization	43.9%	40.5%	22.4%	29.1%	30.8%	22.4%	27.9%	22.4%
Sales & Revenue Forecasting	40.5%	38.0%	25.7%	24.5%	30.0%	27.4%	25.7%	28.3%
Data Monetization & External Data Products	36.7%	39.2%	27.9%	32.9%	24.9%	21.9%	27.9%	20.7%
Operational Performance Monitoring	35.4%	37.6%	26.6%	29.1%	21.1%	30.8%	20.3%	25.3%
Fraud Detection & Risk Management	29.5%	35.0%	27.4%	29.5%	22.4%	26.6%	37.6%	18.1%
Human Capital Analytics	35.0%	35.4%	24.9%	26.2%	27.9%	21.9%	26.2%	21.5%
Regulatory Compliance & Audit Readiness	32.9%	33.3%	37.1%	21.5%	29.1%	28.7%	36.3%	18.1%
Product Analytics & Feature Usage	35.4%	36.3%	22.8%	26.6%	21.9%	26.2%	18.6%	19.4%
Marketing Attribution & Campaign ROI	35.0%	34.2%	18.6%	27.4%	24.5%	21.1%	19.8%	25.3%
R&D and Experimentation Tracking	32.9%	35.9%	23.2%	24.9%	22.8%	25.3%	22.8%	20.7%
IoT Analytics & Predictive Maintenance	26.2%	35.9%	16.0%	29.5%	18.6%	26.2%	21.1%	16.5%
Supply Chain Optimization	36.7%	35.4%	23.2%	24.9%	24.1%	23.6%	21.1%	22.8%
	16.0%	24.7%		33.3%		42.0%		50.6%
	Percentage of Respondents							

Table 1 – Importance of ADI Components Across Use Cases

Importance of Semantic Layer and Data Virtualization

Industry perception of the importance of semantic layer and data virtualization as components of ADI has reached substantial levels. Fifty percent of surveyed organizations identify these capabilities as critical or very important (fig. 6). Another 29% perceive them as important, leaving only 20% that view them as only somewhat important or not important. With a strong majority viewing semantic layer and data virtualization as at least important, technology providers of ADI components must further enhance functionality and optimize messaging toward these concepts to capture burgeoning customer demand.

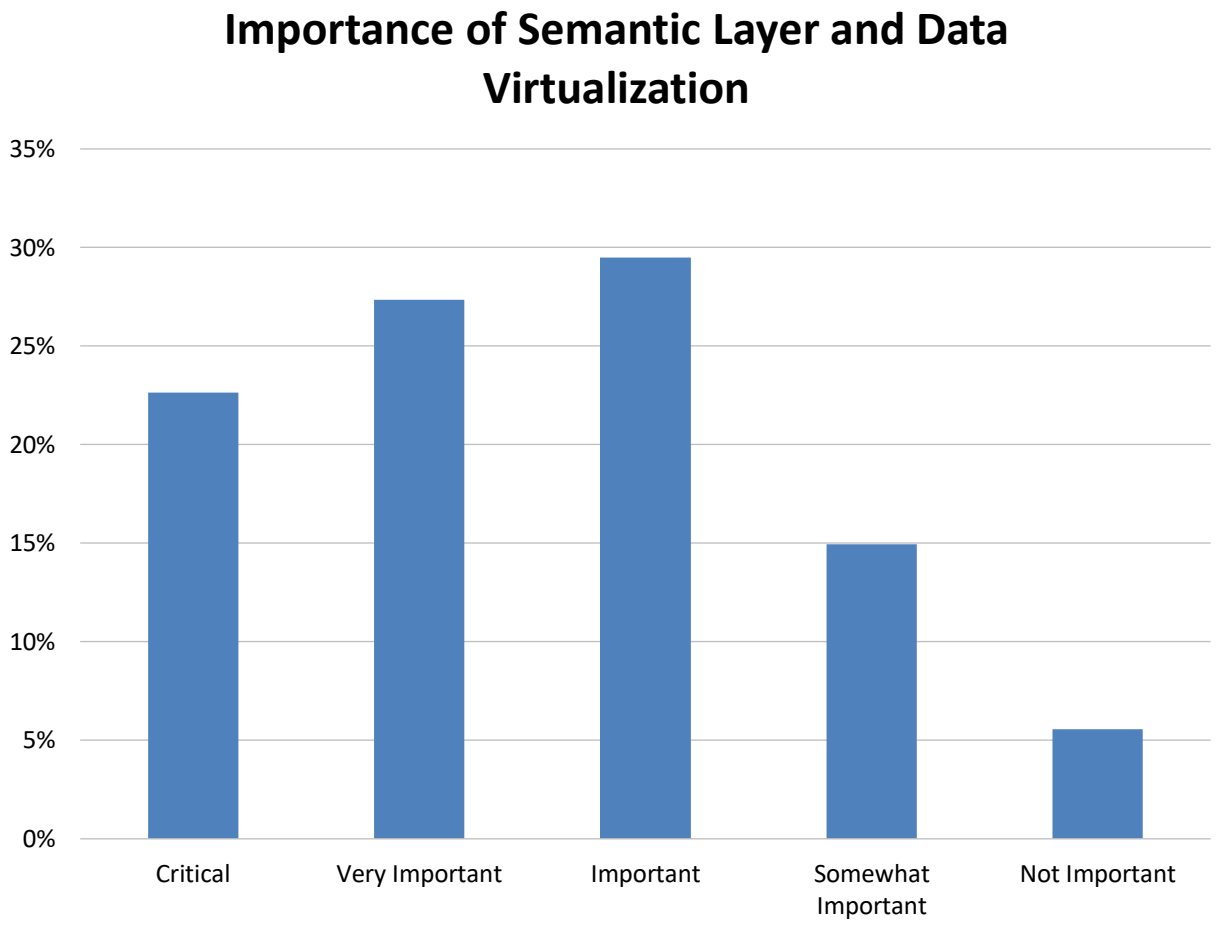


Figure 6 – Importance of Semantic Layer and Data Virtualization

While a majority of respondents perceive semantic layer and data virtualization as important, the perspective varies by geographical region. Organizations in Asia Pacific hold the highest view of the importance of these capabilities, with nearly 60% indicating they are critical or very important (fig. 7). North American organizations are well-aligned to the global averages, with 50% viewing semantic layer and data virtualization as critical or important. EMEA organizations indicate slightly reduced perceptions of importance, with 45% attaching critical or very important ratings to these capabilities. Latin American organizations showed by far the lowest perceived importance levels, at 27%.

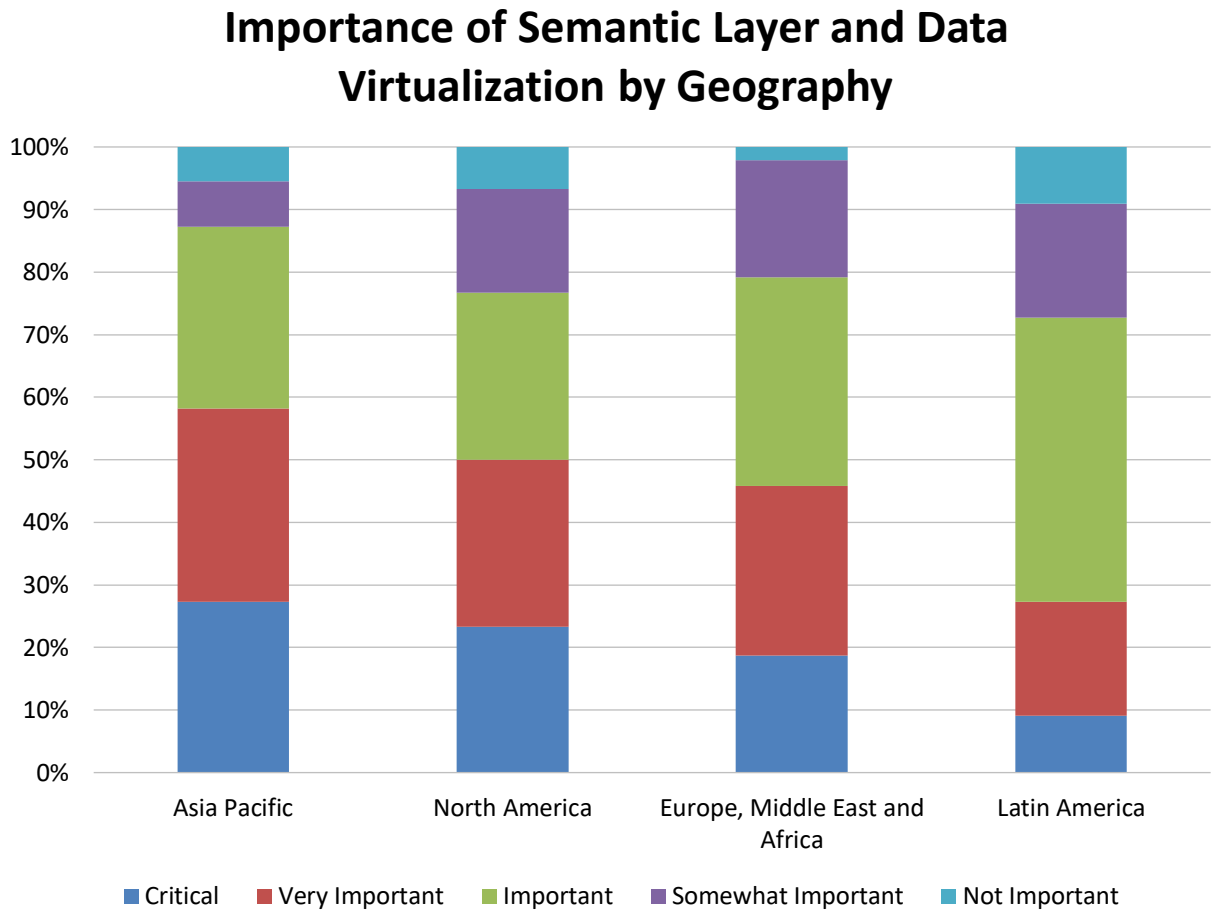


Figure 7 -- Importance of Semantic Layer and Data Virtualization by Geography

Perception of semantic layer and data virtualization's importance varies dramatically across industry sectors (fig. 8). Manufacturing, consumer services and business services stand out as industries placing the greatest importance on these capabilities, with between 55% and 60% of respondents in those industries indicating they are critical or very important. Organizations in all other industries view semantic layer and data virtualization as critical or very important in the frequency range of 35%-45%, with the exception of education, where only 28% of organizations indicate the same levels of importance. Notably, all industries (except education) reflect a solid majority of organizations viewing semantic layer and data virtualization as at least important.

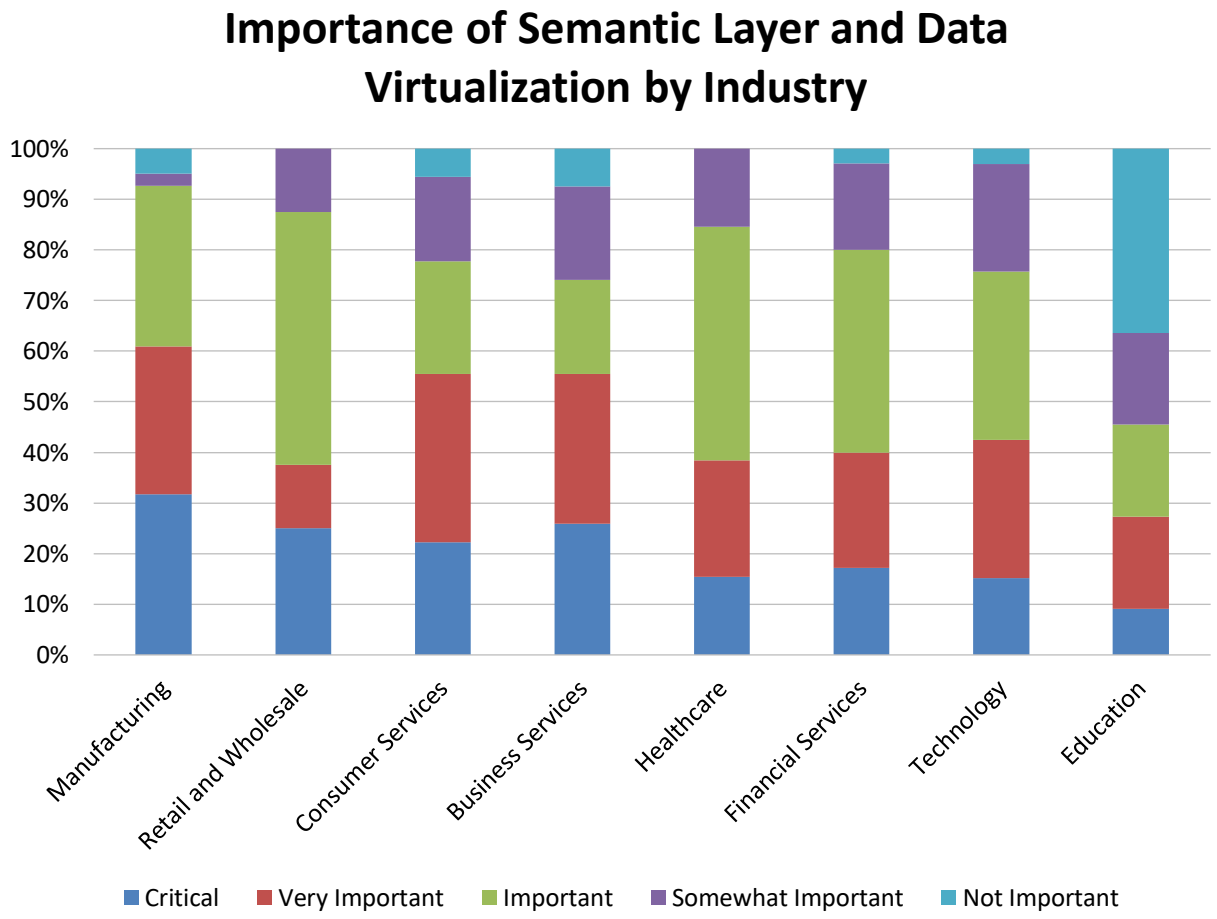


Figure 8 -- Importance of Semantic Layer and Data Virtualization by Industry

The perceived importance of semantic layer and data virtualization positively correlates to organization size (fig. 9). Since larger organizations tend to deal with more data sources, naturally they increasingly seek to deploy capabilities to address that complexity in a more modern, flexible and time-sensitive manner. Twenty-seven percent of organizations with 1-100 employees and 101-1,000 employees perceive these capabilities as critical or very important. Large organizations with 1,001-10,000 employees are much more likely to see semantic layer and data virtualization as critical or very important, doing so with 56% frequency. Among very large organizations, with more than 10,000 employees, this metric rises to an even stronger majority of 66%.

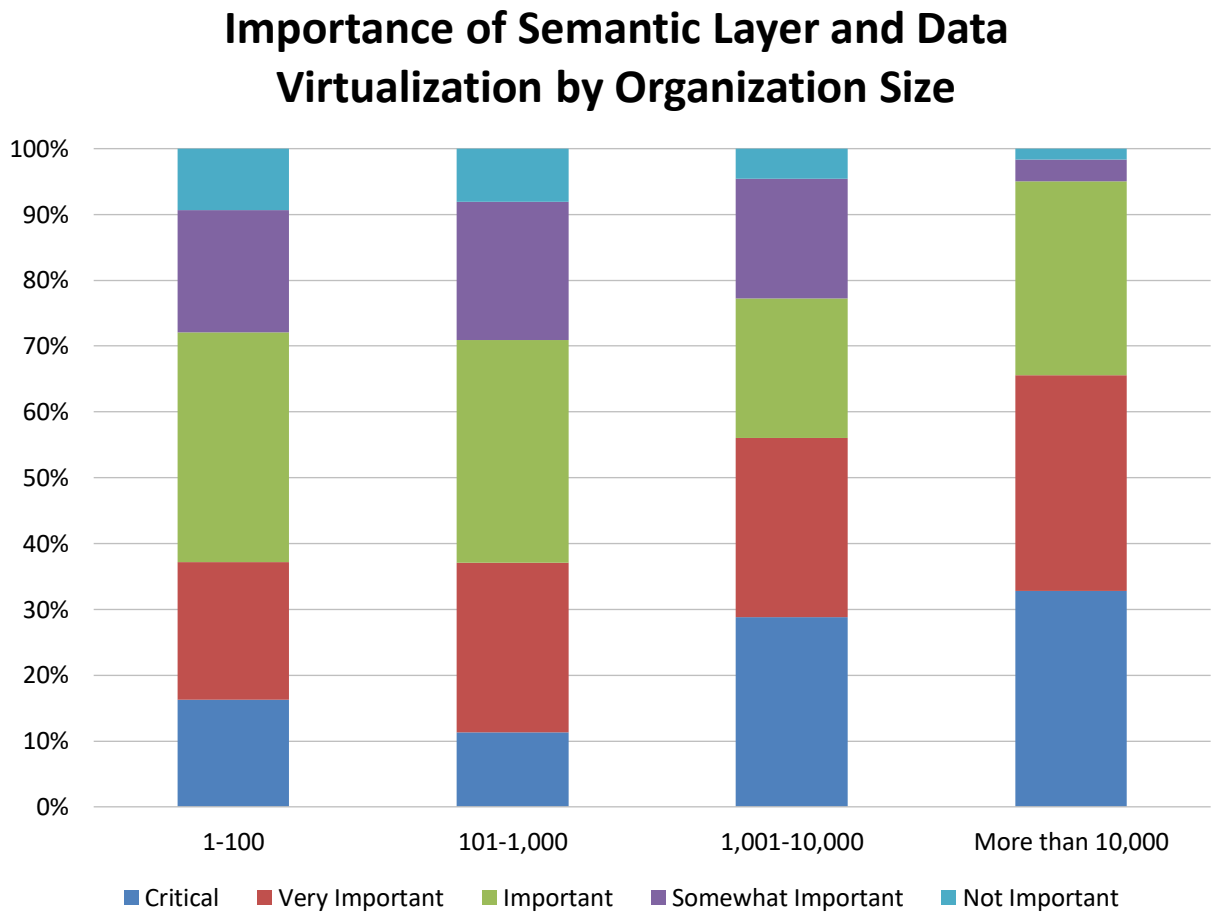


Figure 9 -- Importance of Semantic Layer and Data Virtualization by Organization Size

Perceived importance of semantic layer and data virtualization is also connected to the organization's ability to generate positive ROI from BI investments. Fifty-seven percent of organizations capturing extremely high ROI rate semantic layer and data virtualization as critical (fig. 10). This is substantially higher than for all other levels of ROI realization from BI; organizations at those levels view these capabilities as critical with 20% or lower frequency. Notably, a solid majority of organizations, ranging from 65%-85% at all levels of BI ROI, view semantic layer and data virtualization as at least important. This further underscores the significant role these capabilities play in supporting successful contemporary BI initiatives.

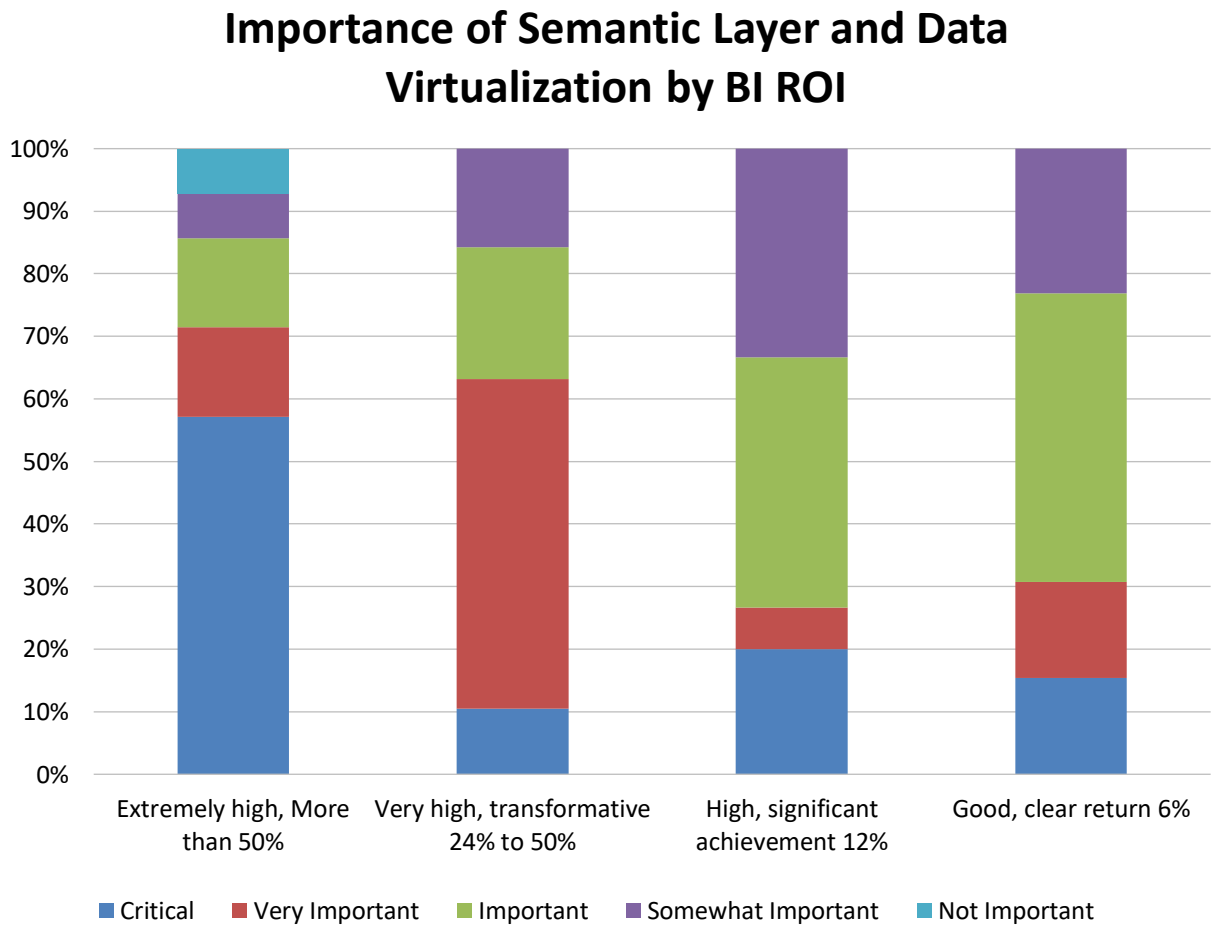


Figure 10 - Importance of Semantic Layer and Data Virtualization by BI ROI

A similar pattern is apparent when comparing the importance of semantic layer and data virtualization with organizations' levels of success with BI (fig. 11). These capabilities are rated as critical or very important by 80% of organizations reporting their BI efforts are extremely successful. This is substantially higher than for those organizations indicating BI is very successful or only moderately successful (46% and 41% respectively). Organizations with somewhat unsuccessful or unsuccessful BI efforts perceive the importance of semantic layer and data virtualization at similar levels, with 46% indicating critical or very important. At least 70% of organizations at all success levels see these capabilities as at least important.

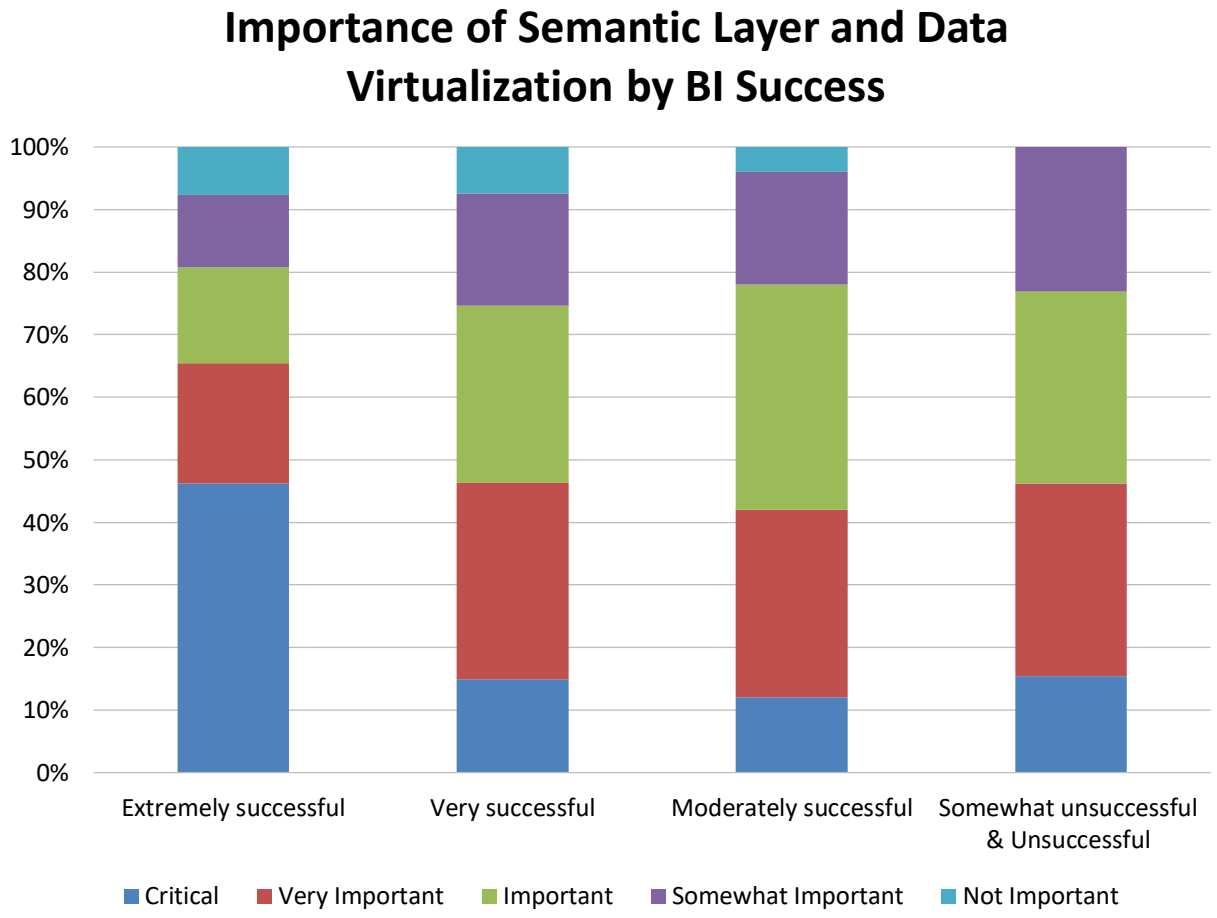


Figure 11 -- Importance of Semantic Layer and Data Virtualization by BI Success

The greater the breadth and urgency of the drivers for an organization to invest in AI, the more likely it is to perceive semantic layer and data virtualization as important (fig. 12). Eighty-eight percent of organizations investing in AI because they believe it will disrupt their industry perceive semantic layer and data virtualization as important, very important or critical. In contrast, this number falls to 80% for organizations investing in AI for specific business challenges or efficiencies. And those merely experimenting with AI and learning about it for some unknown future uses view semantic layer and data virtualization as important, very important or critical 75% of the time. In this latter category of respondents, the perception of very important or critical drops dramatically to only 25%.

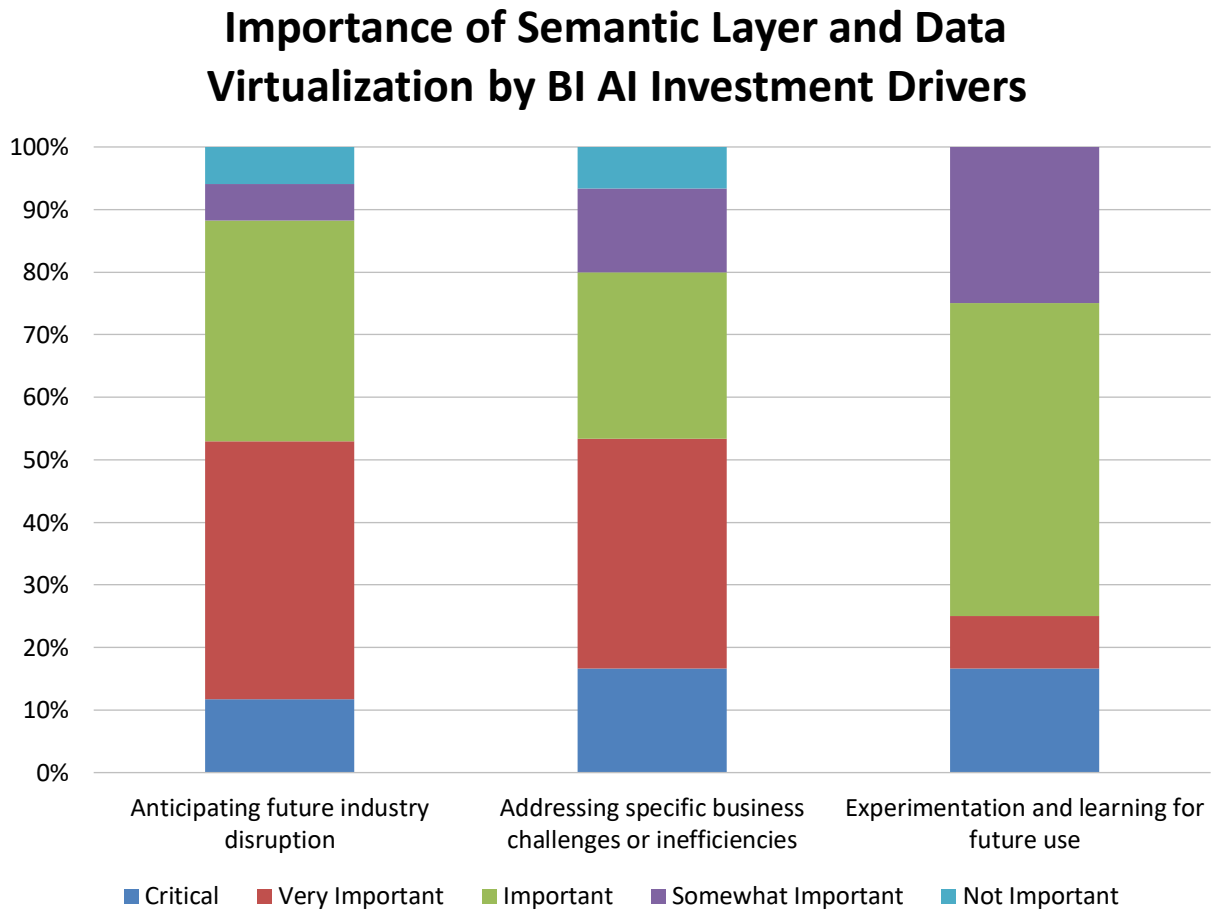


Figure 12 -- Importance of Semantic Layer and Data Virtualization by AI Investment Drivers

Likewise, the more maturity an organization exhibits in its AI adoption, the more likely it is to consider semantic layer and data virtualization as critical or very important (fig. 13). Sixty-seven percent of organization at advanced levels of AI maturity report this view. The rate falls to 50% for both intermediate and emerging levels of AI maturity. Organizations with very nascent levels of AI maturity are far less likely to consider semantic layer and data virtualization as important, with only 14% viewing it as critical or very important. Notably, a majority of organizations in the latter category see these capabilities as either only somewhat important or as not important at all.

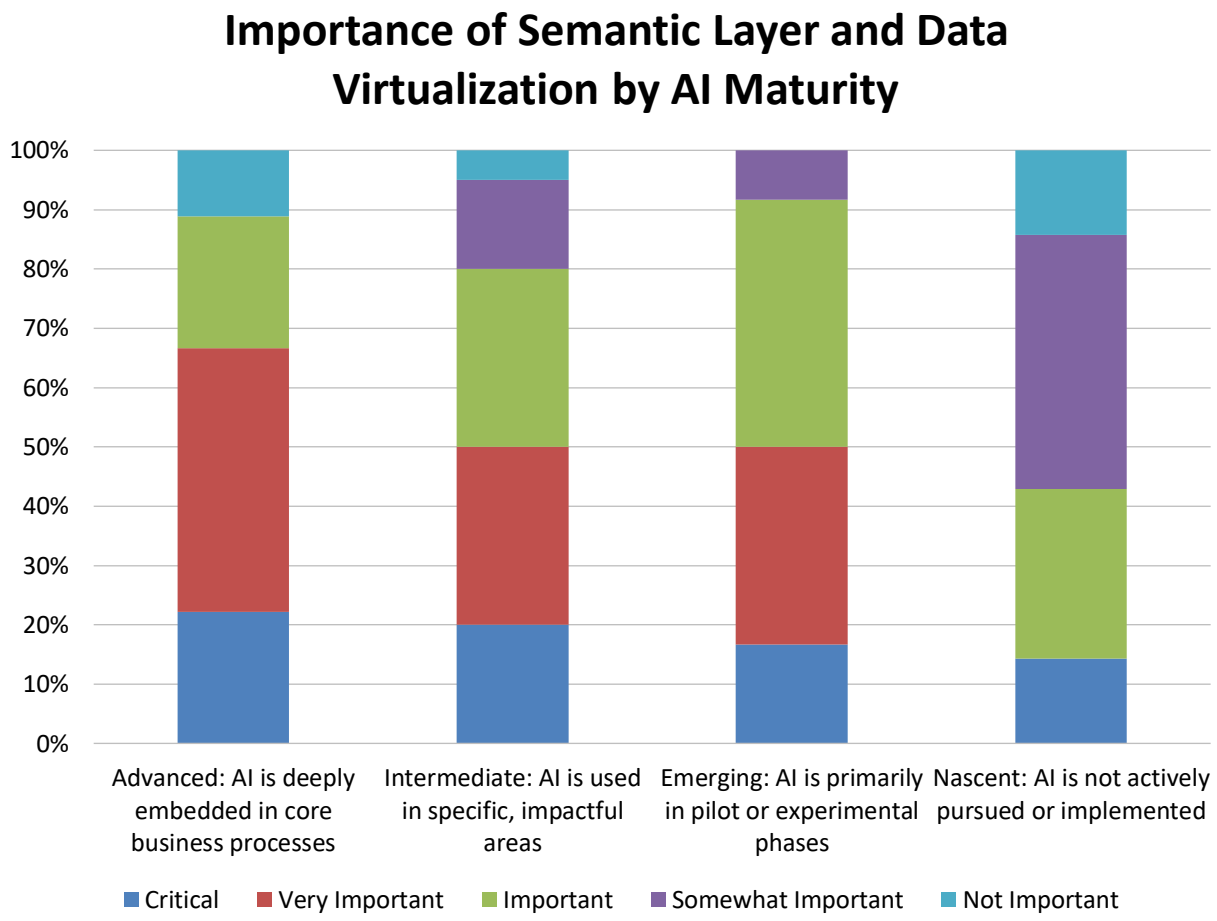


Figure 13 -- Importance of Semantic Layer and Data Virtualization by AI Maturity

Objectives of Semantic Layer and Data Virtualization

Organizations target a wide range of objectives when deploying semantic layer and data virtualization capabilities (fig. 14). The top priority among all other goals is ensuring consistent business definitions across BI and AI tools and applications. A majority of organizations, at 58%, consider this a critical goal for semantic layer and data virtualization. Forty to forty-five percent of organizations consider simplifying data access for business users, improving governance and trust, and enabling self-service analytics to be critical – these three objectives represent the next most popular in importance. Centralization of metrics and KPIs, supporting data virtualization or federation, and reducing the burden on data engineering all garnered less attention, with 32% or less of organizations deeming these critical objectives.

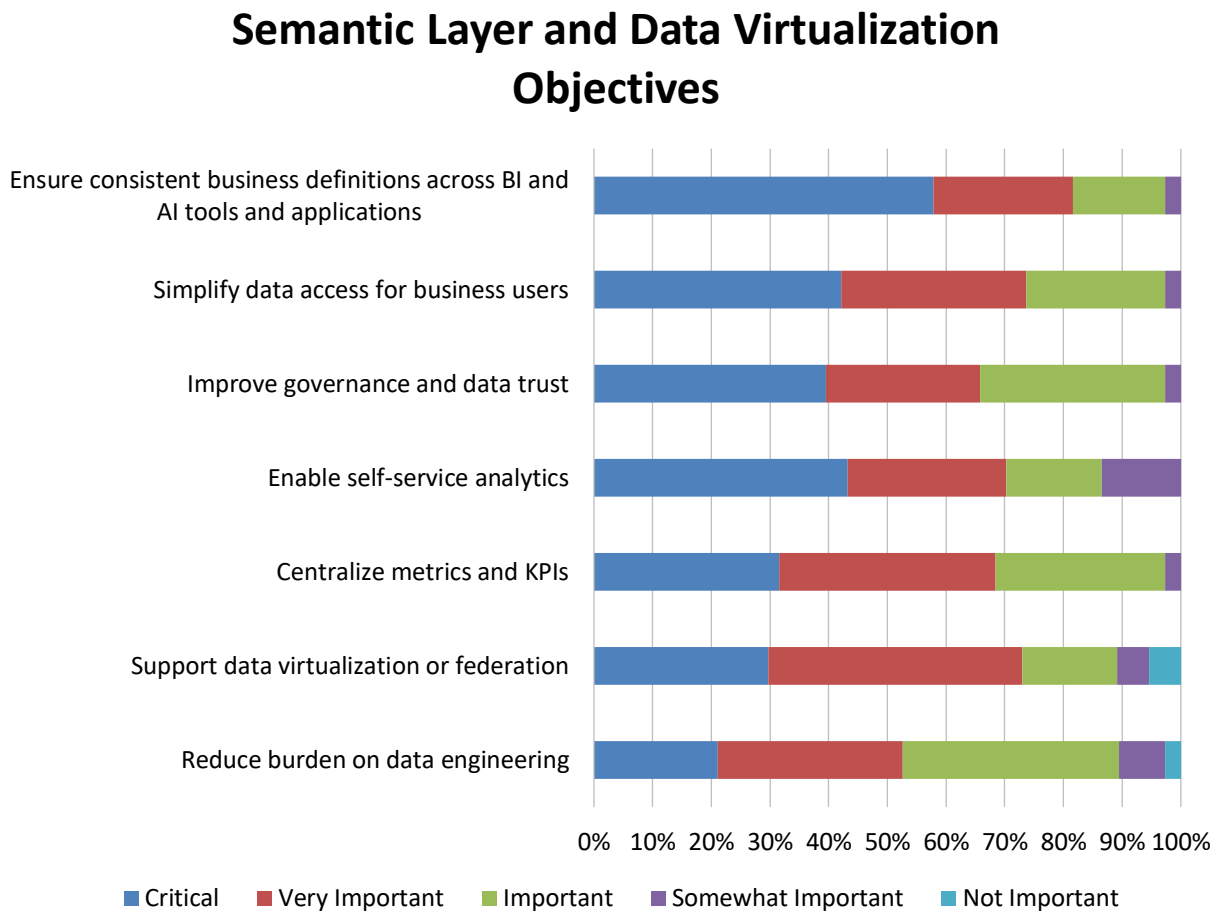


Figure 14 -- Semantic Layer and Data Virtualization Objectives

While semantic layer and data virtualization objectives are largely consistent across regions, there are a few notable variances. All regions place the highest priority on ensuring consistent business definitions across BI and AI tools and applications. EMEA is the only region placing an equally strong priority on supporting data virtualization or federation. Ensuring governance and data trust and enabling self-service analytics are the second most important objectives for organizations in Asia Pacific. Simplifying data access for business users is second most important for North American organizations. EMEA organizations also indicate improving governance and data trust as their lowest priority, which seems at odds with that region's strong focus on privacy and integrity. In contrast, North American organizations view reducing data engineering burden as their lowest-priority objective.

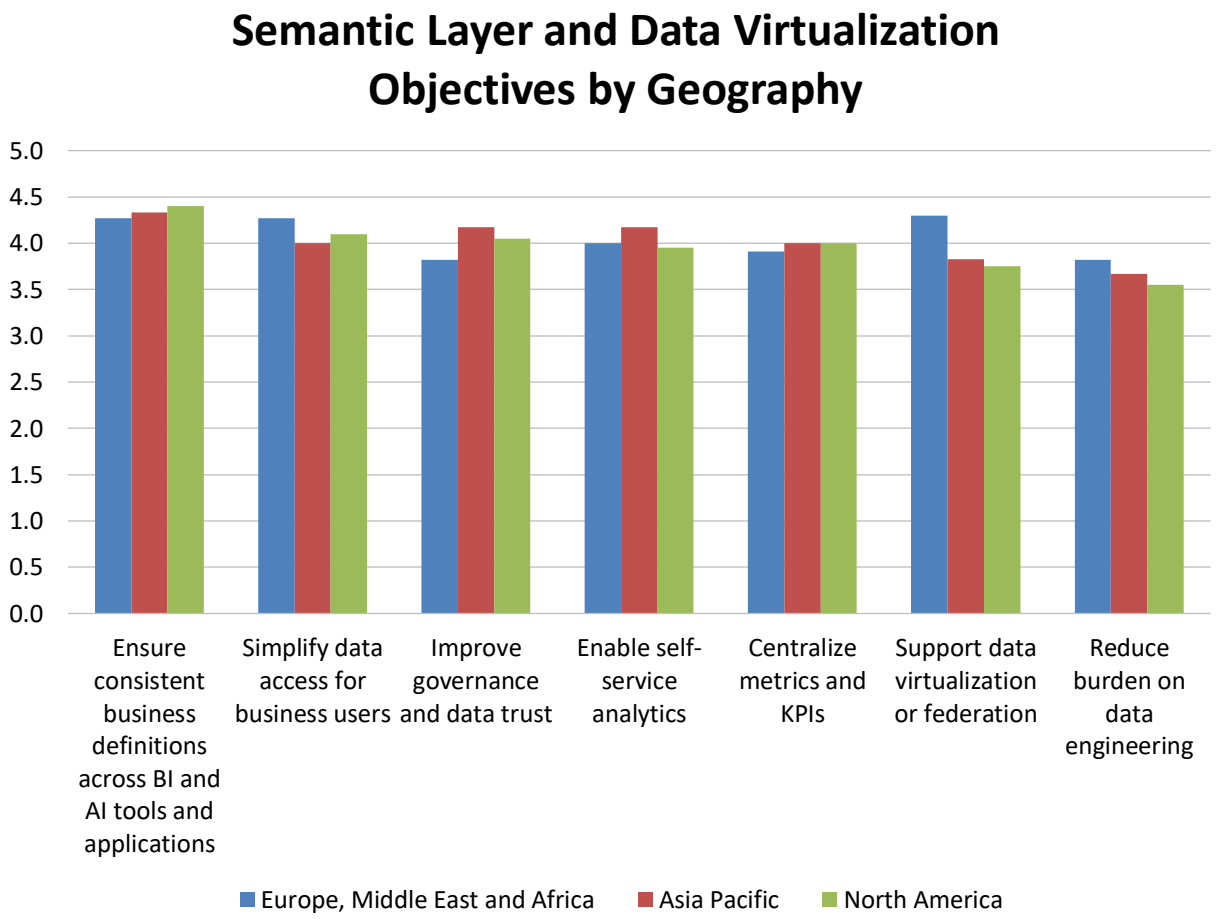


Figure 15 -- Semantic Layer and Data Virtualization Objectives by Geography

Organizations with higher levels of BI success tend to prioritize nearly all semantic layer and data virtualization objectives higher than less successful organizations (fig. 16). Although the level of prioritization is mostly consistent between organizations with very successful BI efforts and those with moderately successful BI efforts, a few objectives reflect larger gaps. Extremely successful organizations prioritize enabling self-service analytics 16% higher on average than their moderately successful peers. A similar 15% gap is apparent for the objective to support data virtualization or federation. Reducing the burden on data engineering is a notable objective of semantic layer and data virtualization capabilities and is the only case on which moderately successful organizations place a higher priority than those extremely successful with BI.

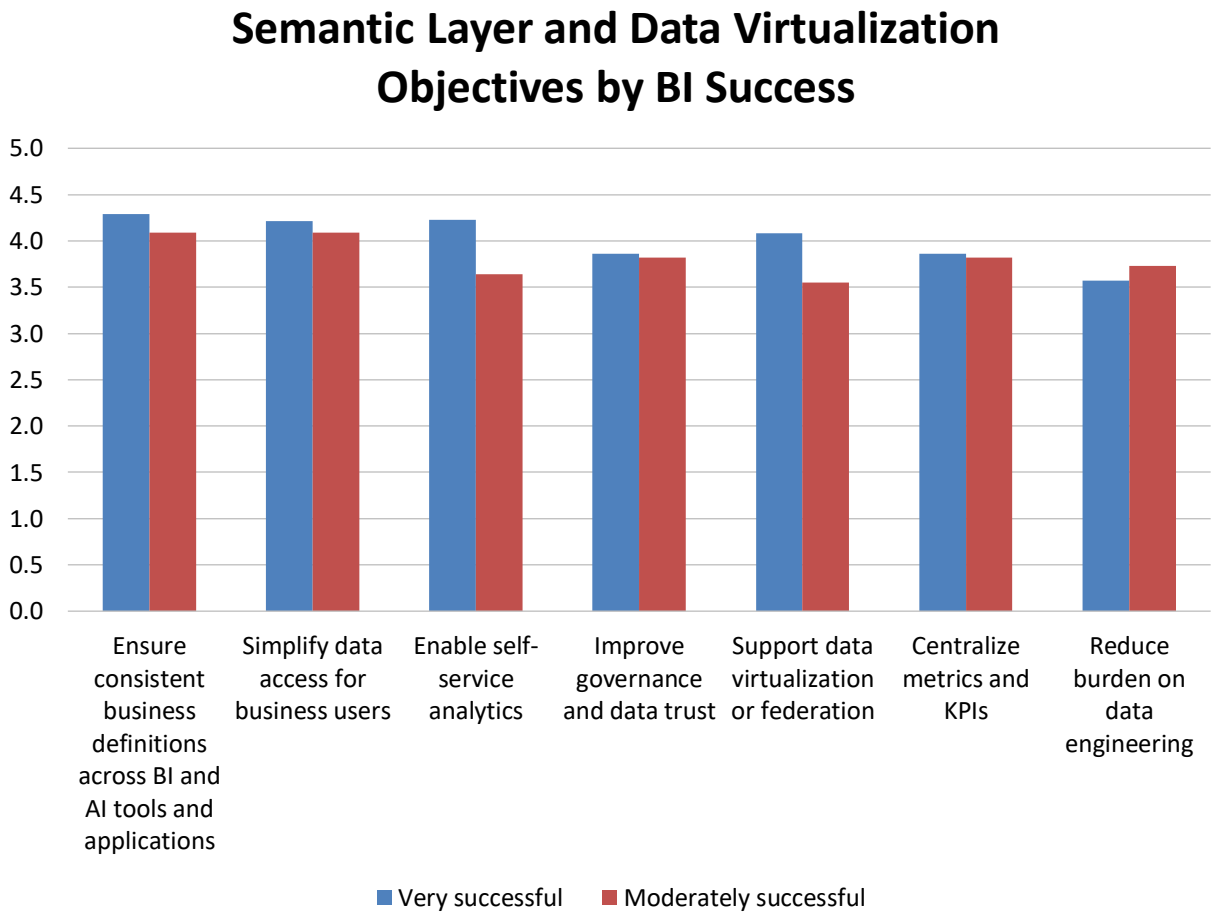


Figure 16 -- Semantic Layer and Data Virtualization Objectives by BI Success

An organization's perception of semantic layer and data virtualization objective priorities depends on its level of AI maturity (fig. 17). While some objectives are prioritized nearly equally, others show a substantial gap between organizations with intermediate AI maturity and those with emerging early-stage maturity. For example, industry-wide, the top priority of ensuring consistent business definitions across BI and AI tools and applications is rated 17% higher by those at intermediate maturity levels. In contrast, emerging AI maturity organizations tend to prioritize supporting data virtualization or federation 18% higher on average than do their intermediate maturity level peers. While those at the emerging maturity level tend to place a somewhat equal priority on all objectives, intermediate maturity organizations appear to focus much more on ensuring consistent definitions and improving governance and data trust than all other objectives. This seems to reflect a greater understanding of where semantic layer and data virtualization can generate optimal value in support of AI tools and applications.

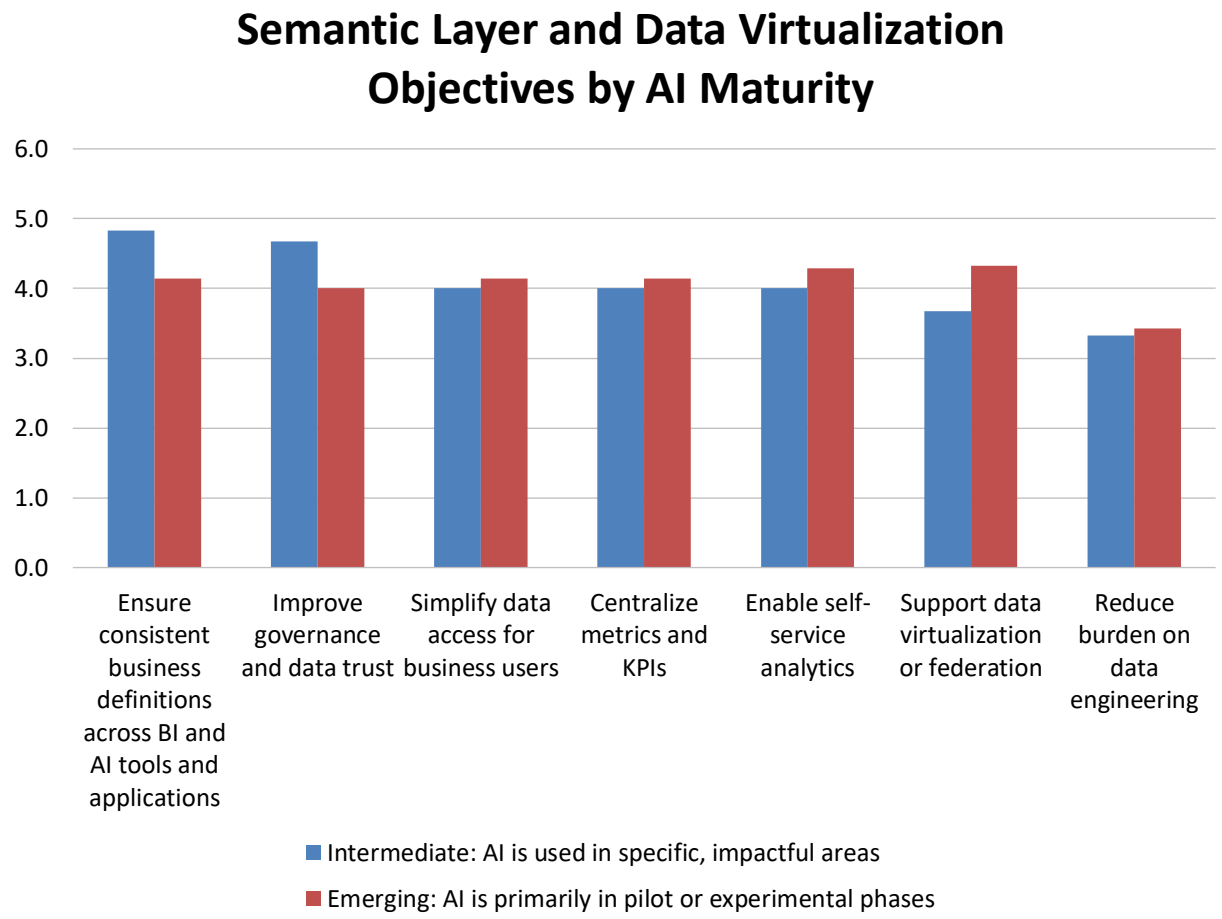


Figure 17 -- Semantic Layer and Data Virtualization Objectives by AI Maturity

Current Adoption and Future Plans for Semantic Layer and Data Virtualization

While interest in semantic layer and data virtualization approaches has become substantial, their actual adoption by end user organizations lags. As of 2026, only 36% of survey respondents indicate they have these capabilities in place today (fig. 18). Another 26% plan to implement them over the next 12 months, which would bring current adoption up to a majority level, at 62%. Of the remaining organizations, 17% plan to deploy semantic layer and data virtualizations in the 24-month time horizon. Twenty-one percent indicate they have no plans at all for deployment.

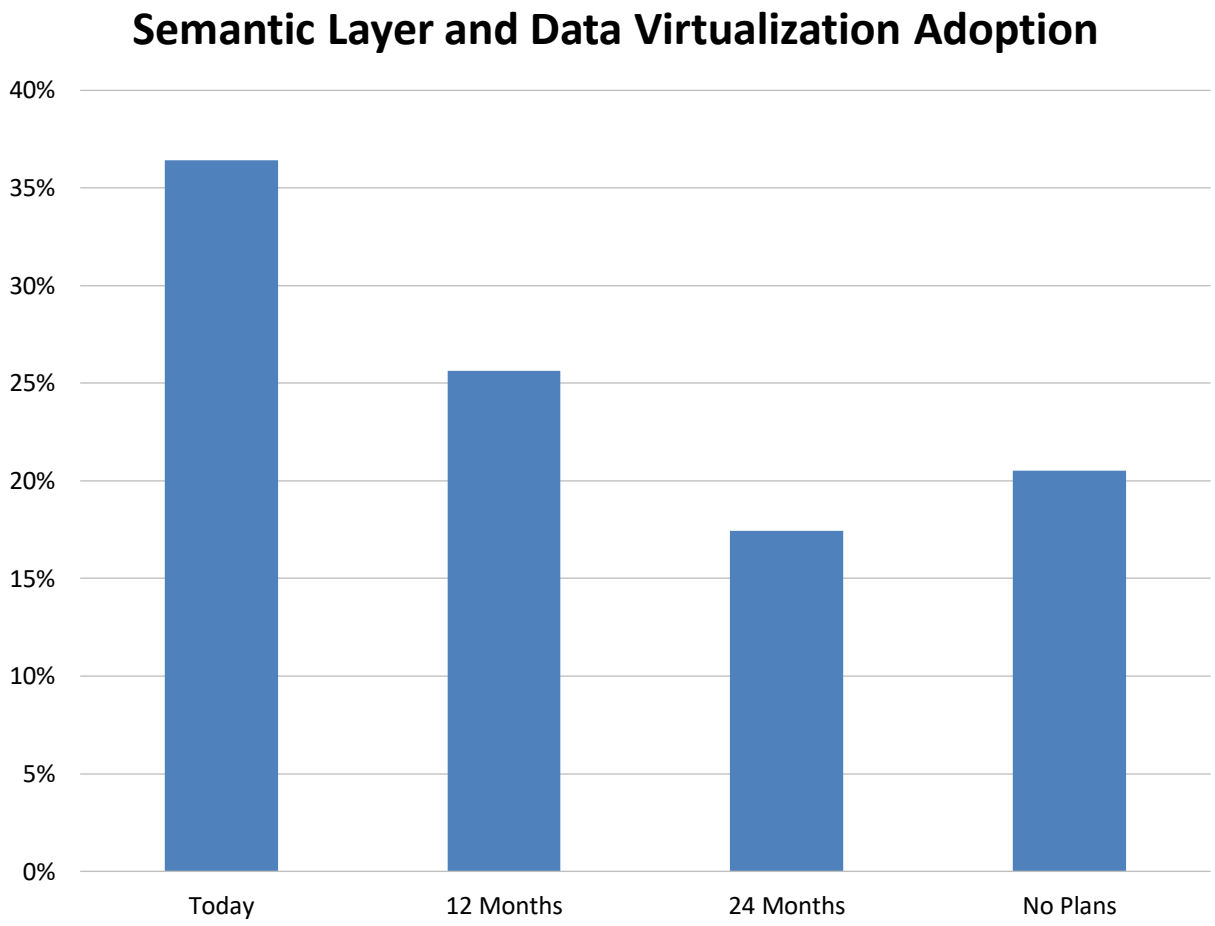


Figure 18 -- Semantic Layer and Data Virtualization Adoption

Semantic layer and data virtualization adoption is currently most advanced in EMEA, with 46% of organizations in that region indicating these capabilities are in place today. North America and Latin America follow closely, both at 40% adoption today. Asia Pacific organizations exhibit far lower current adoption, at 20% today. However, that region is poised for the most near-term activity around semantic layer and data virtualization, with 38% indicating plans for adoption within 12 months. At that point, EMEA, North America and Asia Pacific should approach nearly equal adoption levels, and with an expected strong increase in Latin America, global adoption should reach mainstream levels (approaching 80% of organizations) within 24 months.

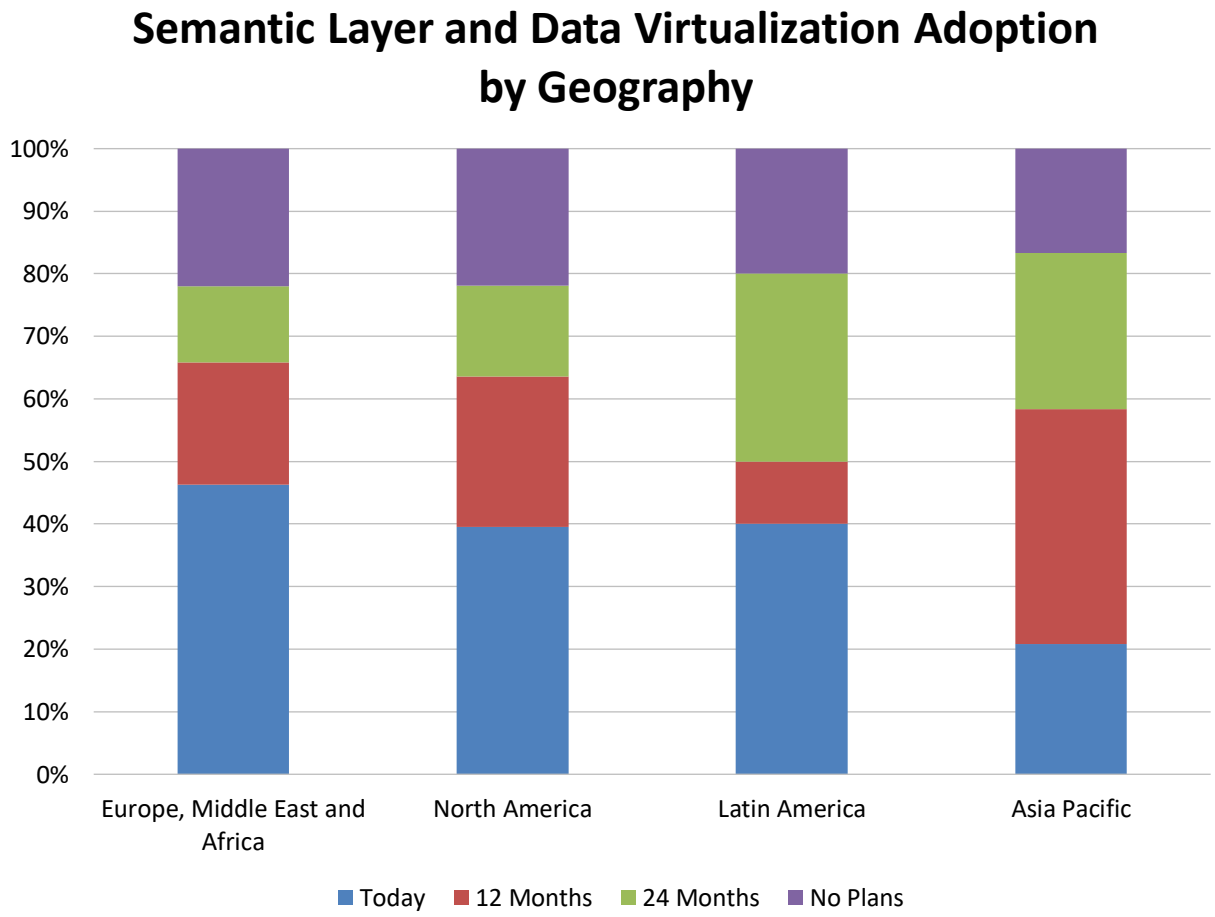


Figure 19 -- Semantic Layer and Data Virtualization Adoption by Geography

Adoption of semantic layer and data virtualization capabilities varies widely by industry, revealing vastly different priorities (fig. 20). Healthcare organizations lead the adoption curve by far, with 63% reporting having these capabilities in place today, another 18% planning to adopt in 12 months, and the remaining planning to adopt in 24 months. This is the only industry in the sample where 100% of respondents had current implementations or near-term plans. Manufacturing, consumer services and financial services represent significant areas of adoption as well, with 30%-40% of organizations in these industries claiming adoption today. These sectors will approach or exceed 70% adoption in 12 months. The technology, business services and education sectors show lower levels of current and planned adoption, barely approaching 50% of organizations within 24 months.

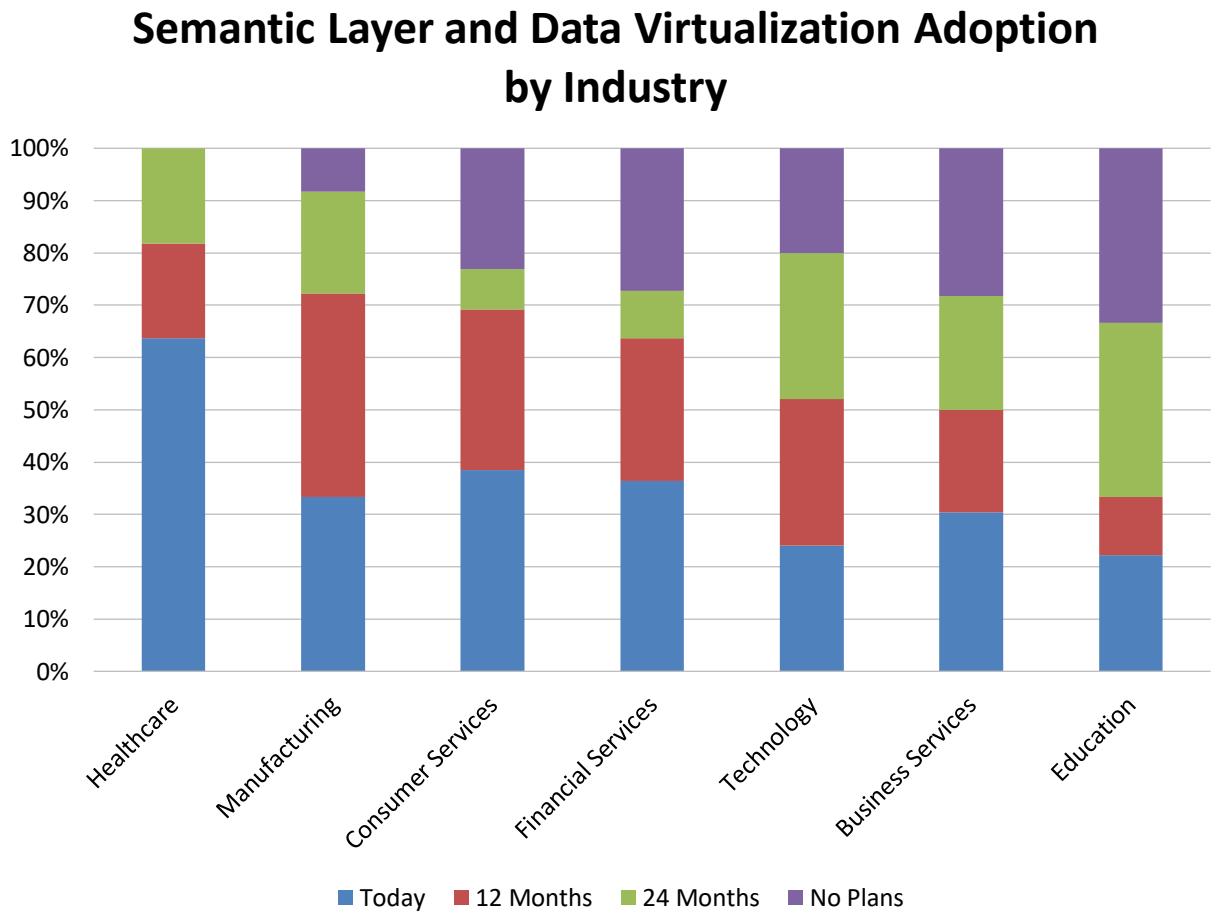


Figure 20 -- Semantic Layer and Data Virtualization Adoption by Industry

Levels of semantic layer and data virtualization adoption correlate positively to organization size (fig. 21). Very small organizations (1-100 employees) report 36% adoption today, with another 17% indicating adoption plans in 12 months. Small organizations (101-1,000 employees) show a lower adoption rate today at 24% but will see significant activity over the next 12 months, with 33% indicating plans. Thirty-seven percent of large organizations (1,001-10,000 employees) report adoption today with steady growth via adoption by another 25% in the coming year. Very large organizations (more than 10,000 employees) reflect the greatest level of current adoption, at a majority of 52% today. This segment will see continued adoption, with another 26% planning to deploy semantic layer and data virtualization capabilities within 12 months.

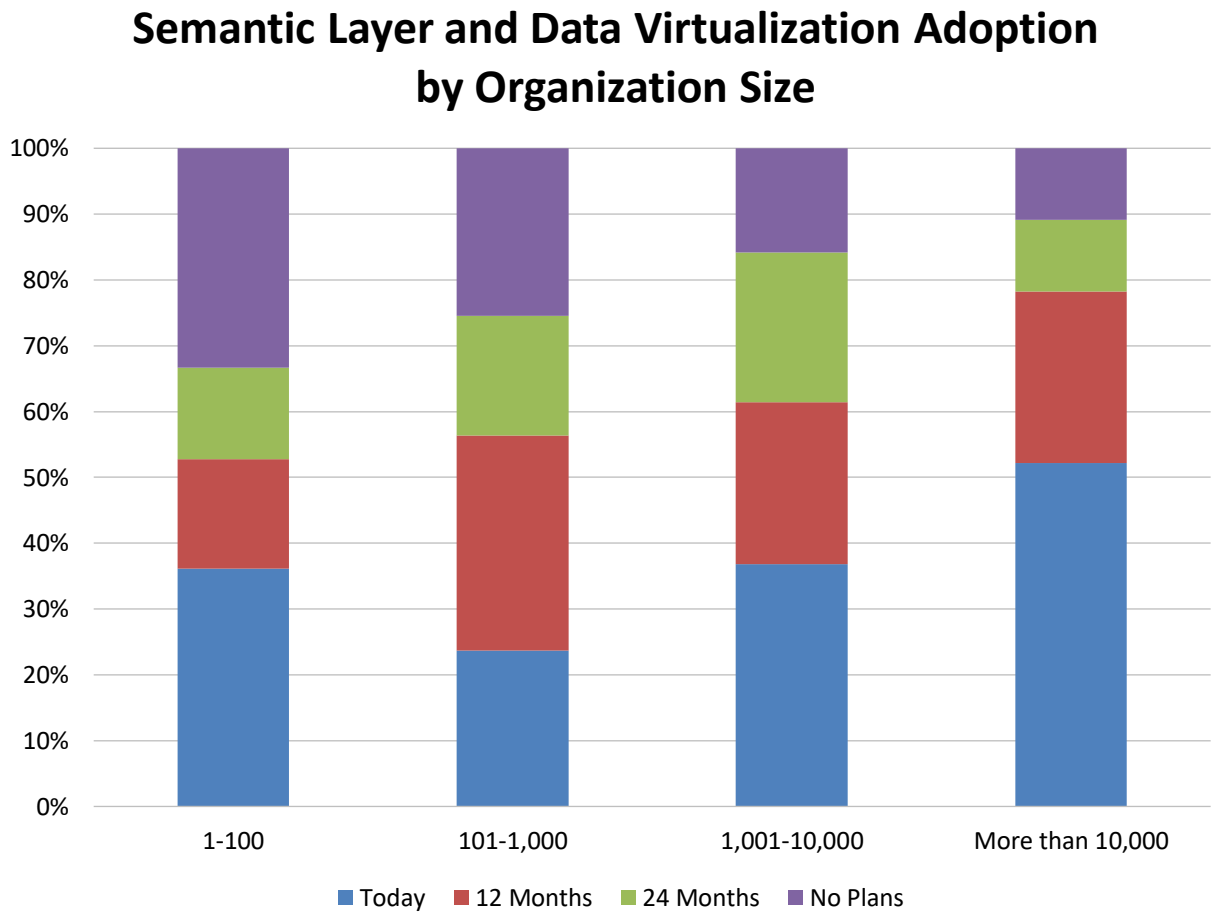


Figure 21 -- Semantic Layer and Data Virtualization Adoption by Organization Size

The relationship between semantic layer and data virtualization adoption and BI success is somewhat unclear. Organizations reporting their BI efforts are extremely successful show a minimally higher rate of current adoption of these capabilities, at 35% frequency (fig. 22). In comparison, all other BI success levels have slightly lower current adoption levels, ranging from 25%-30%. When analyzing adoption plans within 12 months, extremely successful organizations have a 65% likelihood of having semantic layer and data virtualization capabilities in place. Very successful and moderately successful organizations will reach about 68% adoption during the same timeframe. Somewhat successful or unsuccessful organizations will lag adoption trends, approaching 50% in 12 months.

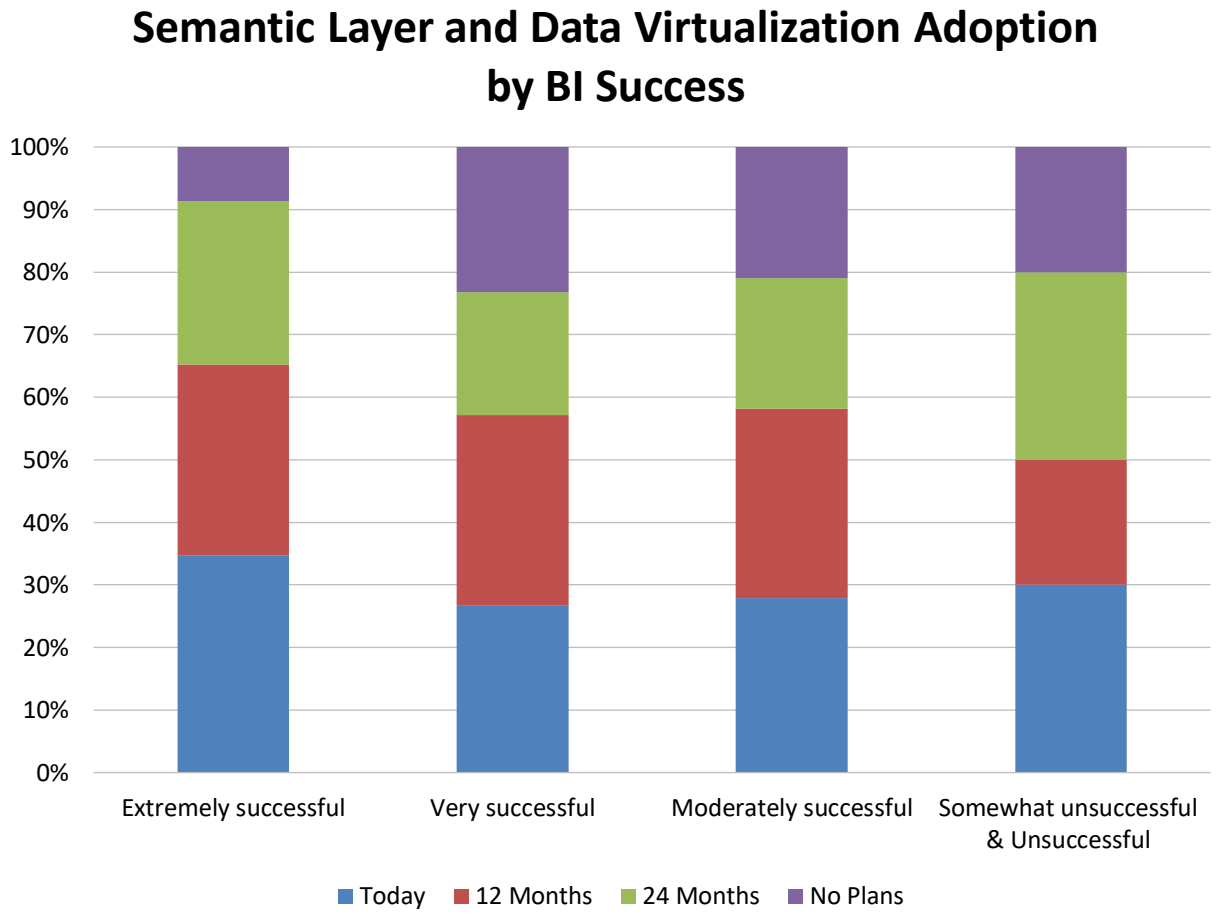


Figure 22 -- Semantic Layer and Data Virtualization Adoption by BI Success

Organizations that have moved beyond an experimental phase with AI are much more likely to have semantic layer and data virtualization capabilities in place today as compared with their peers at an emerging level of AI maturity (fig. 23). Forty-four percent of organizations at an advanced level of AI maturity report having these capabilities implemented today, with another 22% planning to deploy them within 12 months. Forty-six percent of organizations at the intermediate level of AI maturity have deployments today, and another 31% plan to deploy within 12 months. Organizations at nascent levels of AI maturity are far less likely to have semantic layer and data virtualization capabilities implemented today, at only 10%. However, a very significant 52% of these same organizations indicate adoption plans within 12 months. With AI implementation moving rapidly in the industry, this indicates that the market understands semantic layer and data virtualization have a meaningful connection to AI.

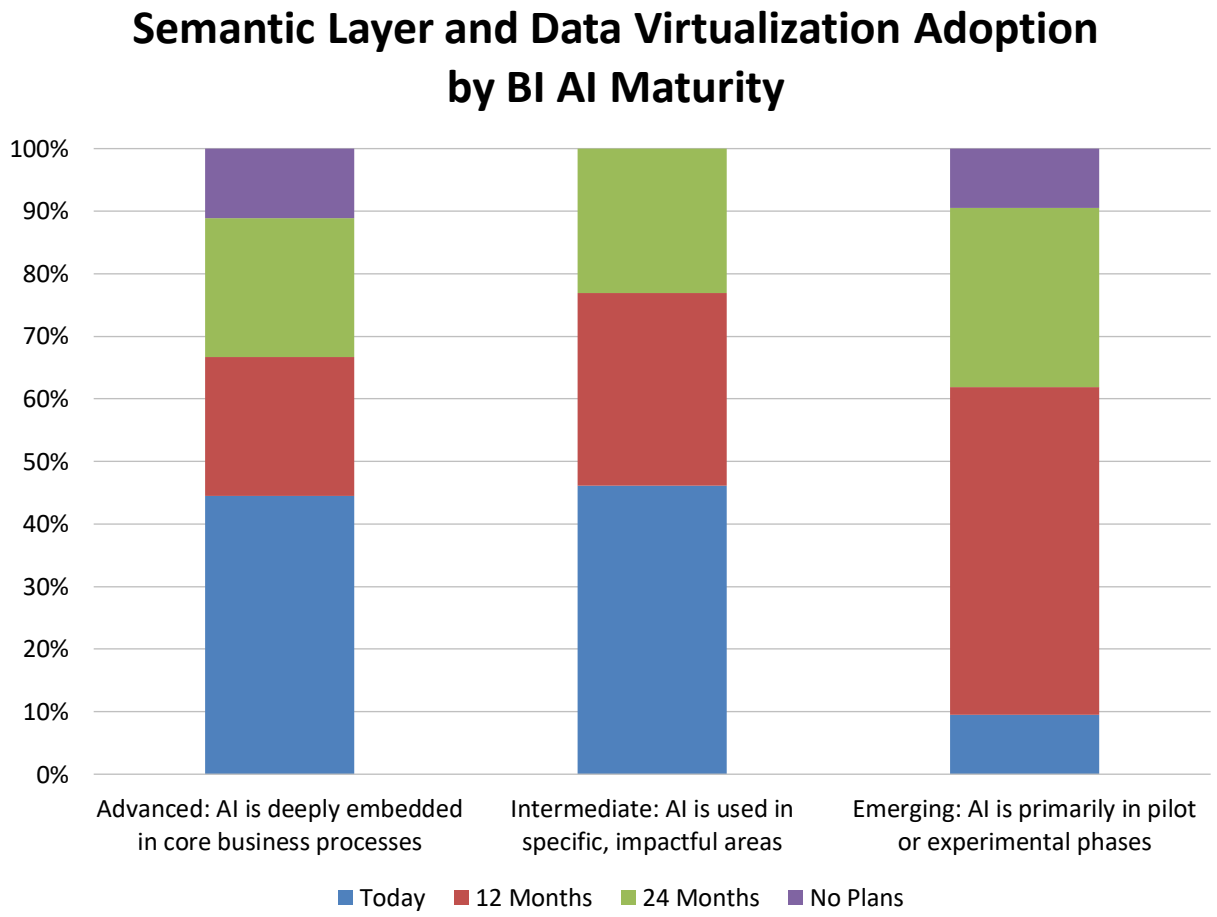


Figure 23 -- Semantic Layer and Data Virtualization Adoption by AI Maturity

Use Cases for Semantic Layer and Data Virtualization

ADI components can be applied to a very wide range of use cases. We asked survey respondents to identify the specific use cases they targeted for semantic layer and data virtualization capabilities (fig. 24). A slight majority of 54% indicated executive dashboards and KPI reporting as the most common use case. No other use case captured a majority response, although sales and revenue forecasting approached this level at 46%. Financial planning and analysis, marketing attribution and supply chain optimization all exceeded 40%. All remaining use cases fell in the 25%-40% frequency range across the sample. This indicates the great diversity of use cases in which semantic layer and data virtualization can deliver value.

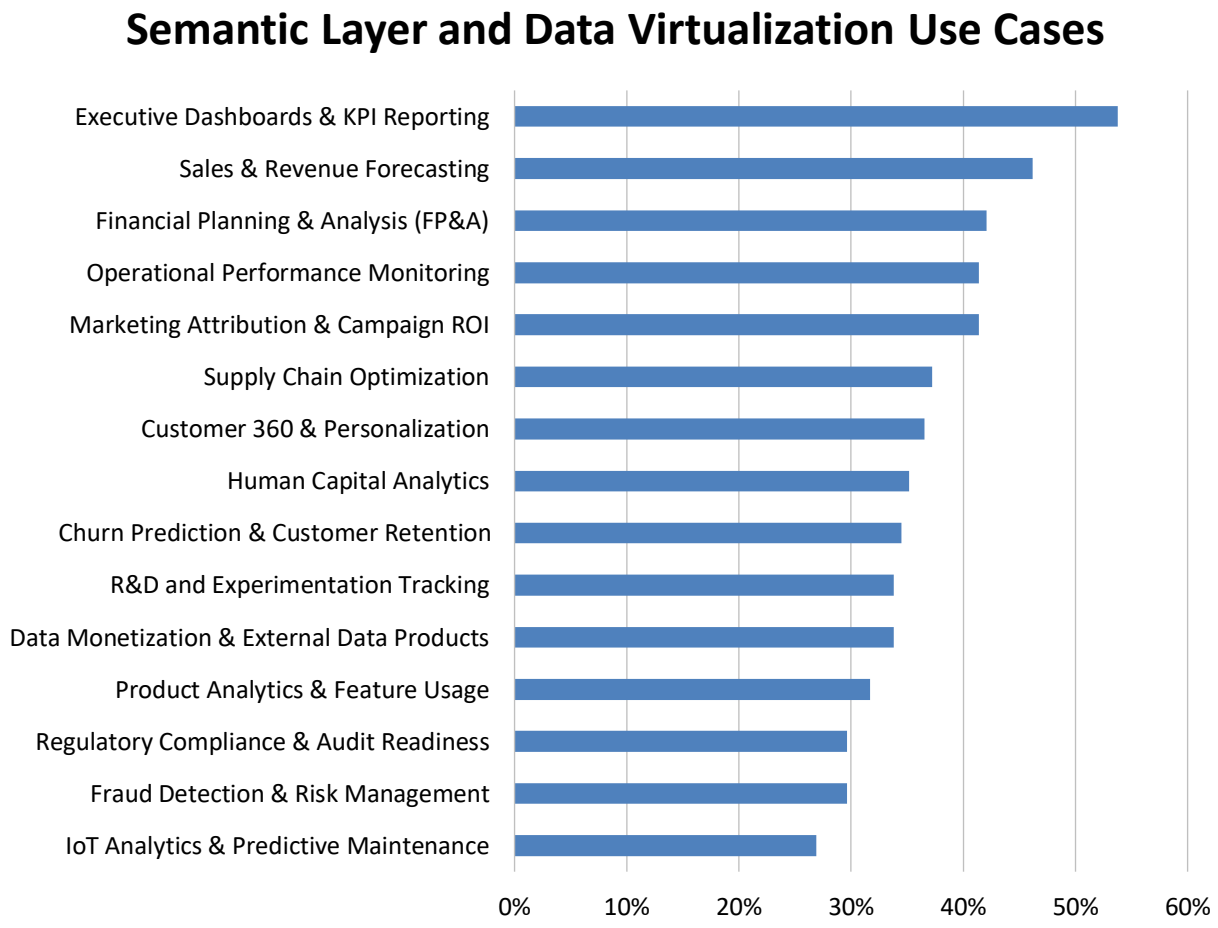


Figure 24 -- Semantic Layer and Data Virtualization Use Cases

Geographic analysis shows that semantic layer and data virtualization use cases differ significantly from the general market trends (fig 25). North American organizations mainly identified use cases in line with the overall market, emphasizing executive dashboards at 61% frequency, with most other use cases in the 30%-50% range. EMEA organizations were more likely to identify sales and revenue forecasting, customer 360, human capital analysis, and R&D as key use cases, each in the 40%-60% range. Organizations in Asia Pacific reflected perhaps the most balanced perspective across the range of use cases, with none exceeding 50% frequency and most identified by 30%-50% of respondents in that region. Latin American organizations, in contrast, showed the greatest variability with several standout use cases such as marketing attribution at 63%, regulatory compliance at 50% and data monetization at 50%. This region has a distinct approach to applying semantic layer and data virtualization capabilities.

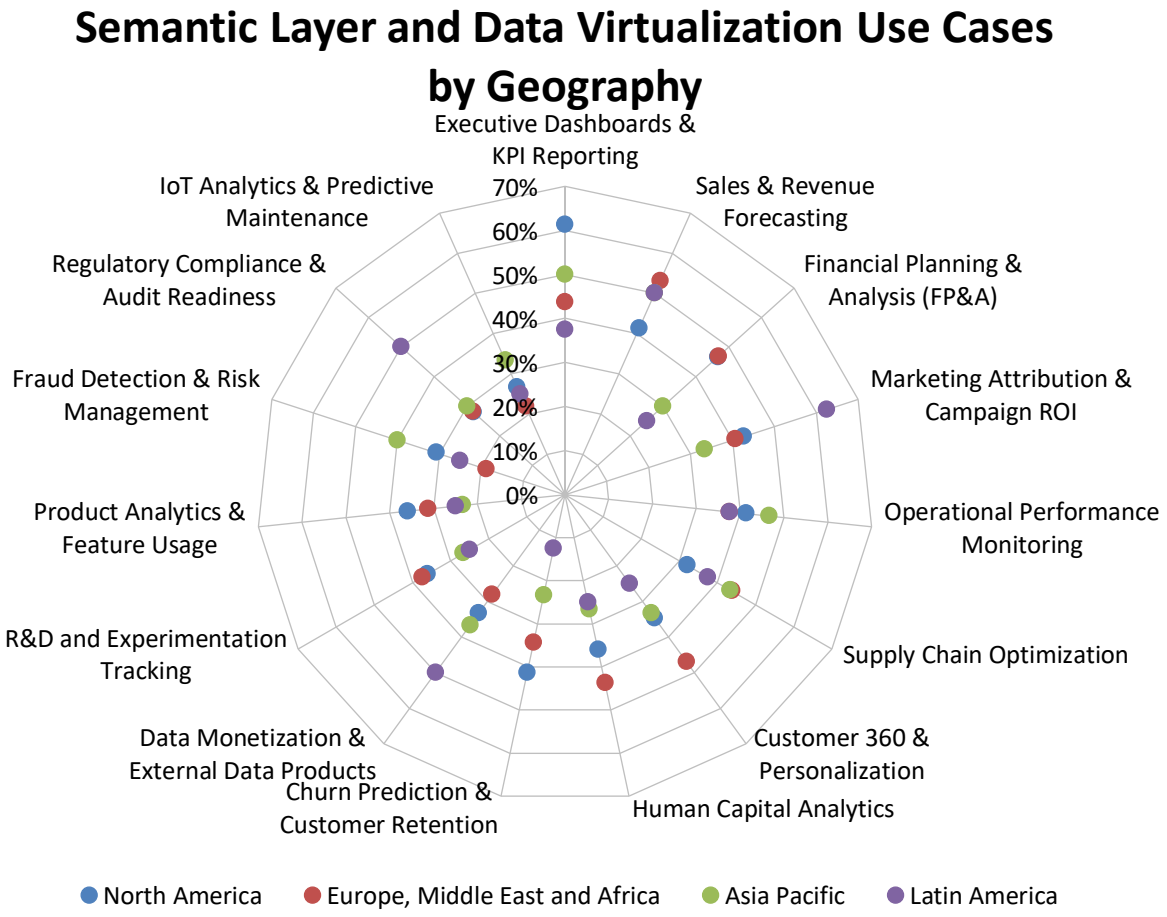


Figure 25 -- Semantic Layer and Data Virtualization Use Cases by Geography

Industry adoption of semantic layer and data virtualization varies significantly, with distinctive use cases for many (fig 26). Healthcare organizations frequently identify a wider range of use cases than peers in other sectors, with executive dashboards highlighted by 75% of respondents, FP&A by 63%, marketing attribution by 63%, and data monetization by 63%—all well above industry average rates. Likewise, manufacturing organizations select a substantial number of common use cases, such as sales and revenue forecasting at 62%, operational performance at 52%, supply chain optimization at 52%, and R&D at 57%. There was no majority consensus on specific use cases for most other industries. Respondents in those sectors instead focused on a mix of use cases, all at minority levels in the 25%-40% range.

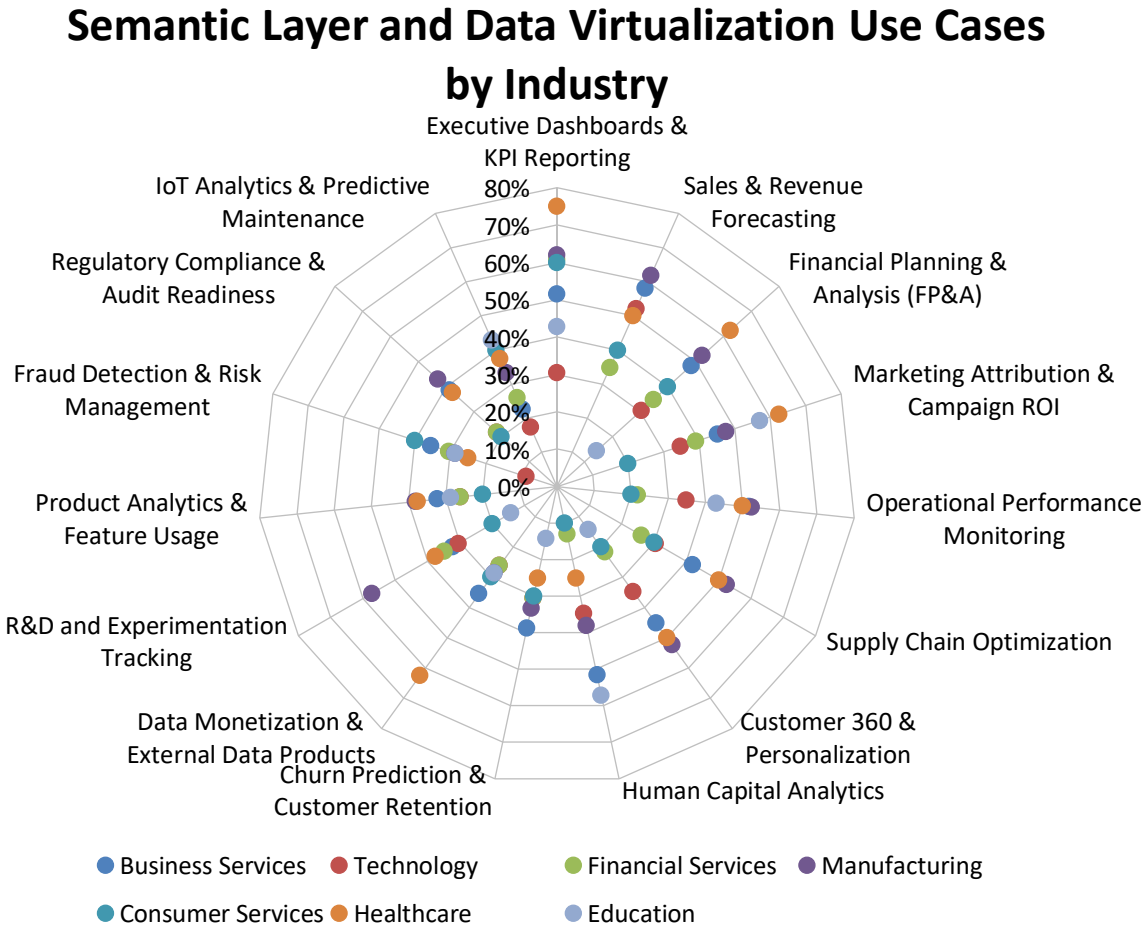


Figure 26 -- Semantic Layer and Data Virtualization Use Cases by Industry

Organizations that deploy semantic layer and data virtualization capabilities support a wide range of use cases. Those receiving the highest levels of ROI from their BI initiatives also tend to focus on use cases that are strategically impactful (fig. 27). For example, 63% of those claiming extremely high ROI (over 50%) cite supply chain optimization, operational performance monitoring and IoT analytics as key use cases. Seventy percent of those achieving very high and transformative ROI (24%-50%) identify sales and revenue forecasting, executive dashboards, R&D, and marketing attribution as preferred use cases. Organizations receiving lower levels of ROI tend to have fewer clear priorities, with responses more evenly spread across a range of use cases. As an exception, those capturing good ROI (6%) indicate the greatest frequency of focus on data monetization and product analytics. As these areas of activity are still evolving, with many challenges and unclear best practices, it makes sense that ROI is muted.

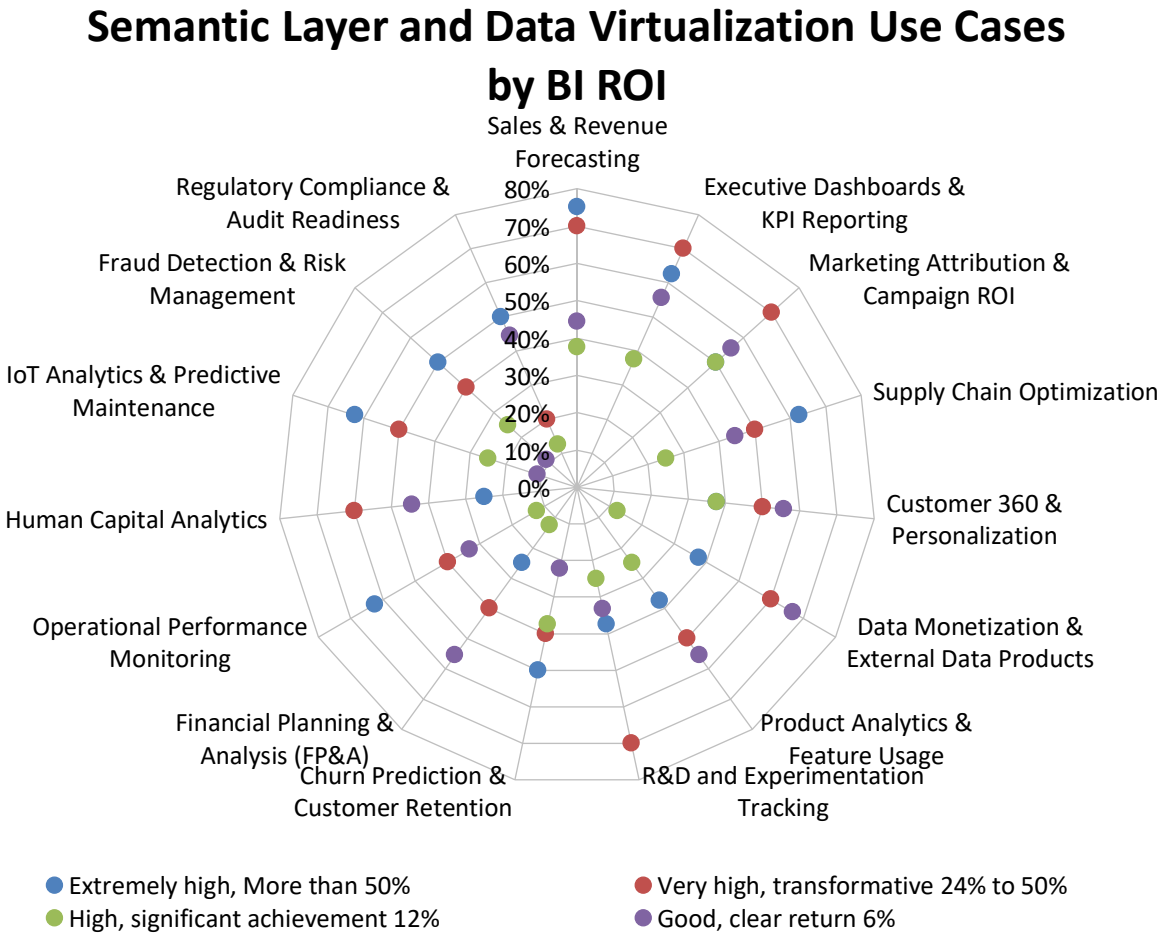


Figure 27 -- Semantic Layer and Data Virtualization Use Cases by BI ROI

Organizations achieving the highest levels of BI success tend to focus on a few specific, highly strategic use cases contributing to both the top and bottom lines of the business (fig. 28). Rather than traditional use cases like executive dashboards and FP&A, organizations reporting their BI efforts are extremely success most often identify marketing attribution, sales forecasting, supply chain optimization and customer 360 as key semantic layer and data virtualization use cases. More than 40% of these organizations select these use cases as priorities. In contrast, those with lower levels of BI success tend to emphasize traditional use cases. For example, 57% of moderately successful organizations identify executive dashboards, as do 50% of somewhat unsuccessful and unsuccessful organizations.

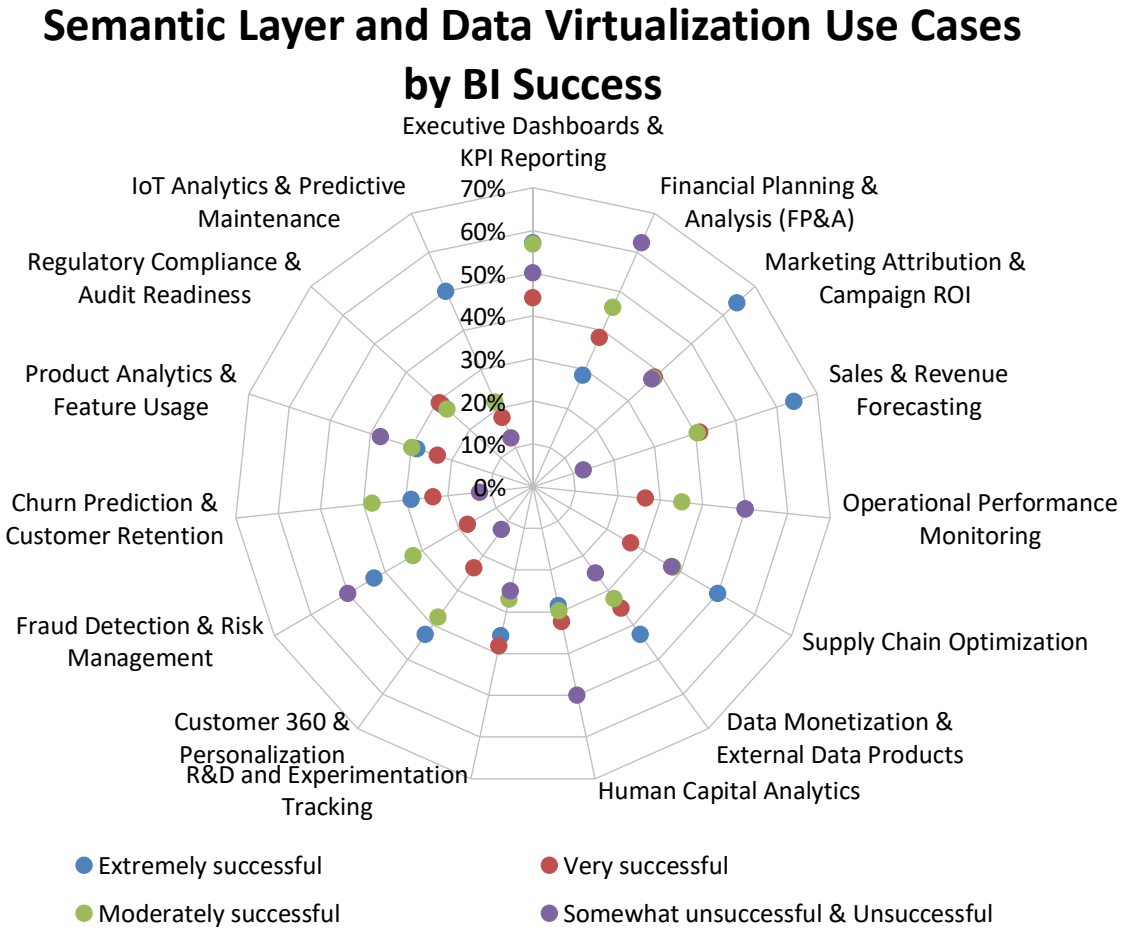


Figure 28 -- Semantic Layer and Data Virtualization Use Cases by BI Success

There is a clear distinction in use cases toward which organizations at different levels of AI maturity apply semantic layer and data virtualization capabilities (fig. 29). Those organizations at emerging levels of maturity, very early in their AI journey, tend to more often focus on traditional and more simplistic use cases. Sixty-three percent of these organizations identify sales and revenue forecasting and 57% indicate FP&A as important use cases, the highest frequencies among this segment of respondents. In contrast, organizations at intermediate levels of AI maturity are more likely to identify marketing attribution and supply chain optimization, each at 64% frequency, as the most important use cases for semantic layer and data virtualization. Mature organizations tend to identify more advanced use cases, such as data monetization, product analytics, and operational monitoring, than do their less-AI-mature peers.

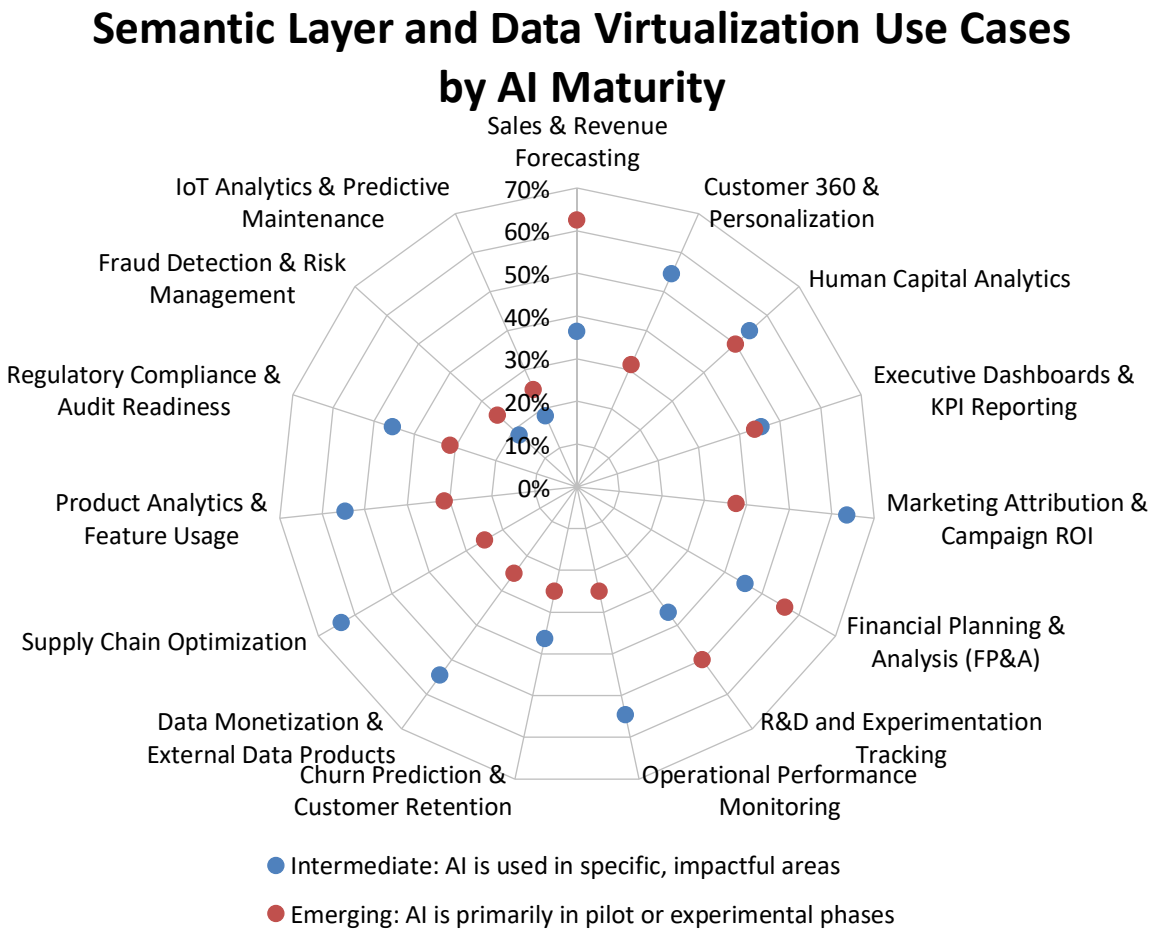


Figure 29 -- Semantic Layer and Data Virtualization Use Cases by AI Maturity

ADI Capabilities Relevant for Semantic Layer and Data Virtualization

ADI offerings include a range of capabilities important for organizations deploying semantic layer and data virtualization. Among these, 48% of respondents identified collaboration and governance capabilities as most important (fig. 30), followed by graphic development capabilities (45%) and AI-based recommendations (42%). Many other capabilities were highlighted by between 30% and 40% of respondents, meaning they are moderately important, including AI-assisted mapping, role-based security, no-code or code-friendly transformations, API and integration support, metadata capabilities, AI-generated data quality, and audit trails and lineage reporting. Twenty to thirty percent of organizations identified AI-driven monitoring, scheduling and orchestration tools, and debugging and data flow monitoring as important. Real-time, streaming and change data capture was least-often selected as an important capability by only 17% of respondents. This makes sense because data virtualization is primarily about accessing data "in place," as opposed to physical data movement.

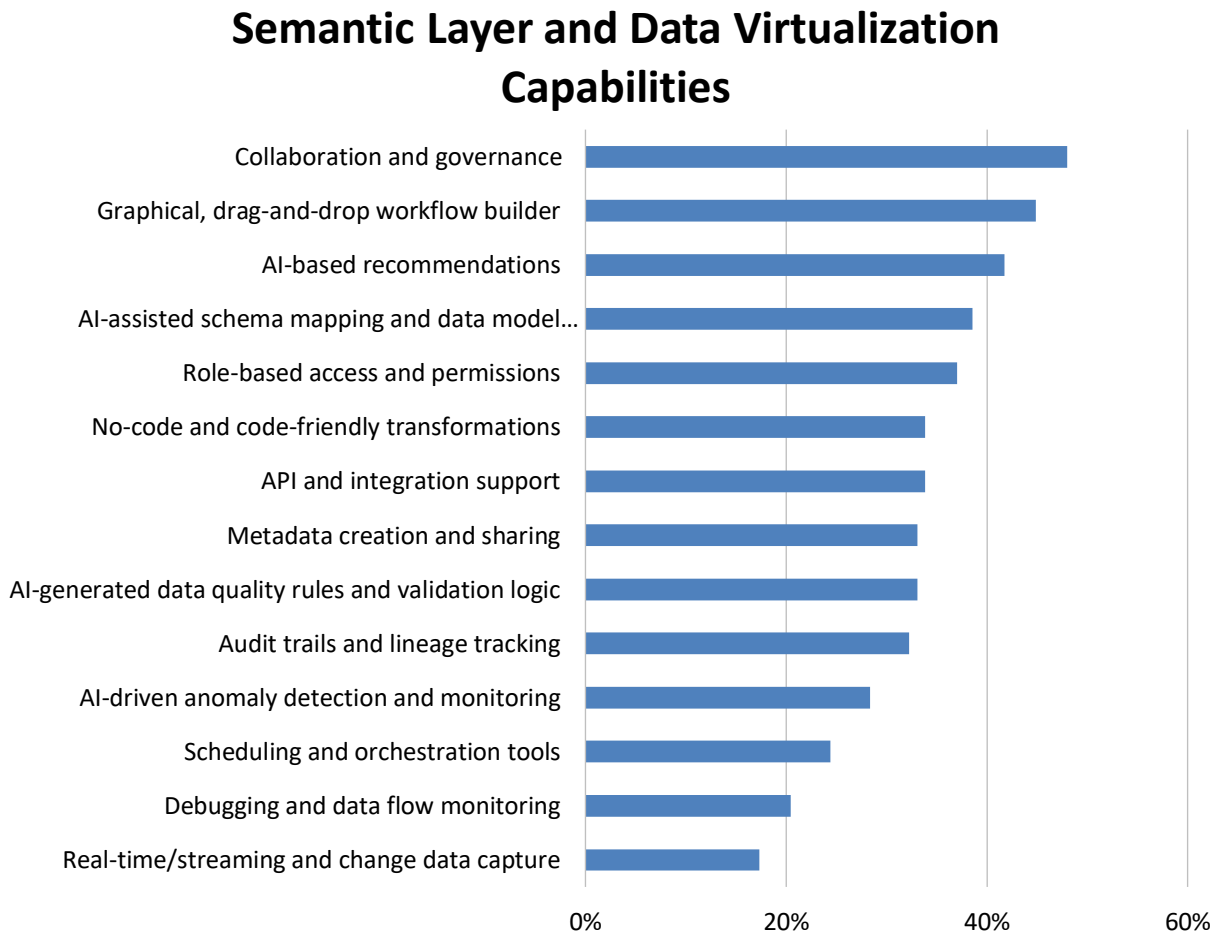


Figure 30 -- Semantic Layer and Data Virtualization Capabilities

The preferred mix of capabilities to support semantic layer and data virtualization varies significantly across geographic regions. North American organizations are most likely, within a range of 40%-50% frequency, to emphasize collaboration and governance, graphical development, AI-driven activity, and low/no-code transformations, reflecting an overall desire in that region for more automation of development and management (fig. 31). EMEA organizations, in contrast, were much more likely to identify graphical development and API integration (both in the 40%-50% range), implying they place a premium on strong developer-driven (rather than AI-driven) facilities. Asia Pacific organizations present a similar profile to North America, strongly emphasizing AI-driven capabilities. Latin American organizations also focus on AI-driven features, but less so for development capabilities and more for user-focused recommendations and data quality, selecting both with frequencies in the 50%-60% range.

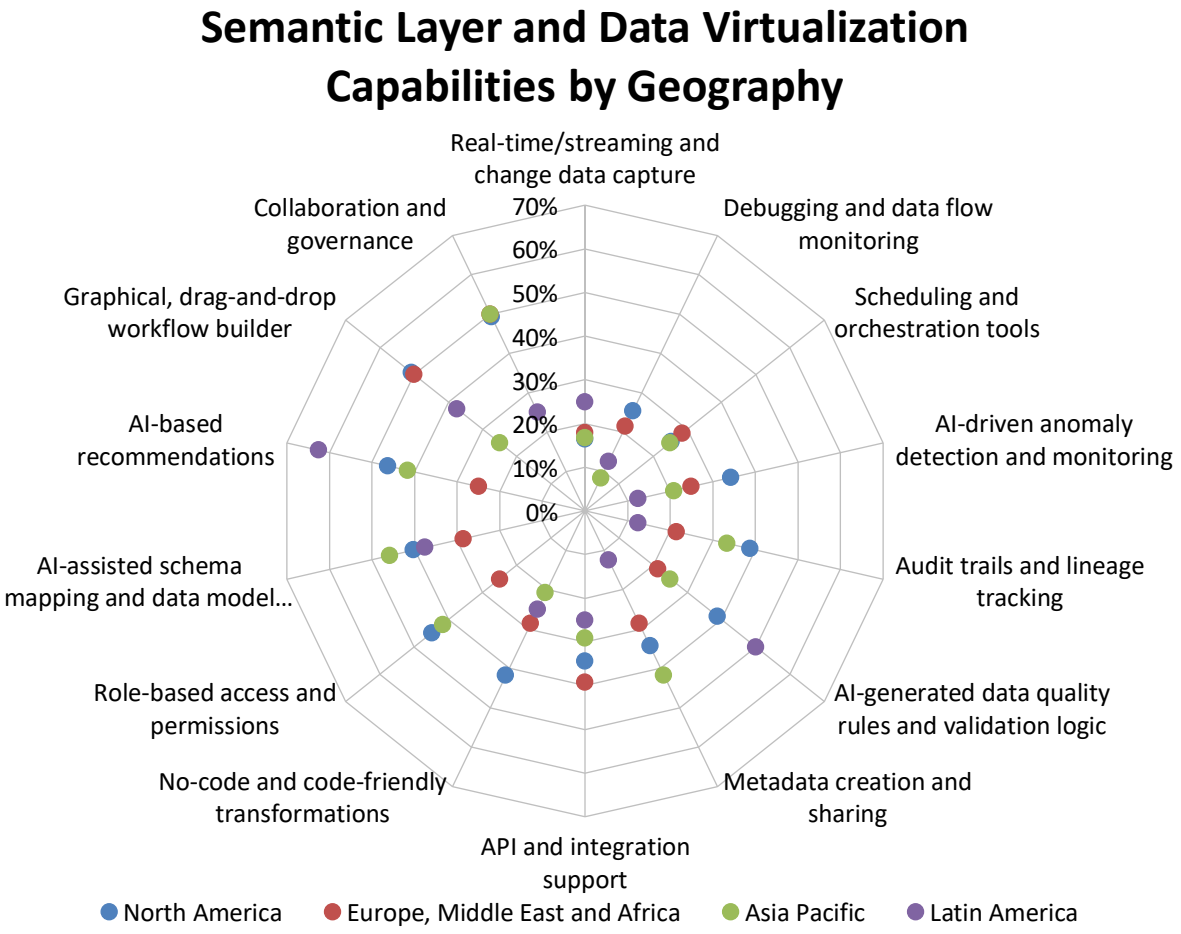


Figure 31 -- Semantic Layer and Data Virtualization Capabilities by Geography

Industry sector priorities for ADI capabilities to support semantic layer and data virtualization vary significantly. Several industries consistently identify specific capabilities at a high rate (fig. 32). Consumer services organizations stand out most strongly in this regard, with more than 60% of those respondents highlighting collaboration and governance, AI-assisted mapping, role-based security and audit trails and lineage as critical. Healthcare organizations select graphical development and metadata creation and sharing at nearly the same levels but de-emphasize many other capabilities. Manufacturing organizations appear most interested in a different set of capabilities, highlighting the importance of AI-based recommendations and no-code and code-friendly transformation at a 50%-55% rate. The technology sector doesn't identify any capabilities as important above a 30% frequency, in line with the lower importance it places on semantic layer and data virtualization overall (fig. 8).

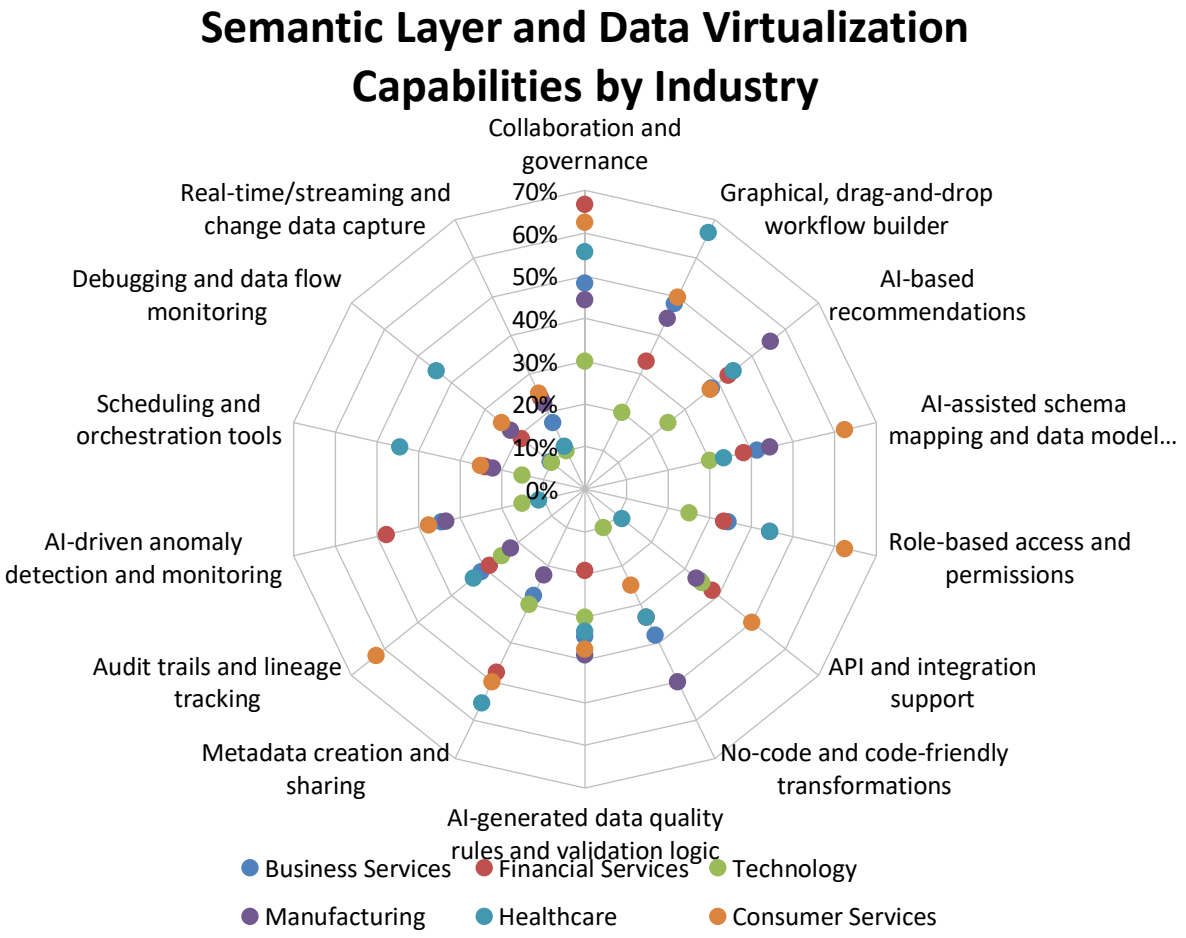


Figure 32 -- Semantic Layer and Data Virtualization Capabilities by Industry

Organizations whose BI initiatives experience the highest levels of success tend to place a higher priority on a wider range of semantic layer and data virtualization capabilities than do their less successful peers. More than 50% of those reporting their BI efforts are extremely successful identify collaboration and governance, AI-based recommendations, AI-assisted mapping, AI-generated data quality rules, metadata creation and sharing, and audit trails as critical capabilities (fig. 33). In contrast, organizations reporting moderately successful initiatives only rate a single capability, collaboration and governance, as important with greater than 50% frequency. Those reporting very successful efforts rate no capabilities as important over 50% of the time, and only AI-based recommendations and AI-assisted mapping with over 40% incidence. This implies that organizations experiencing suboptimal success overlook critical capabilities that they should be emphasizing to drive great value.

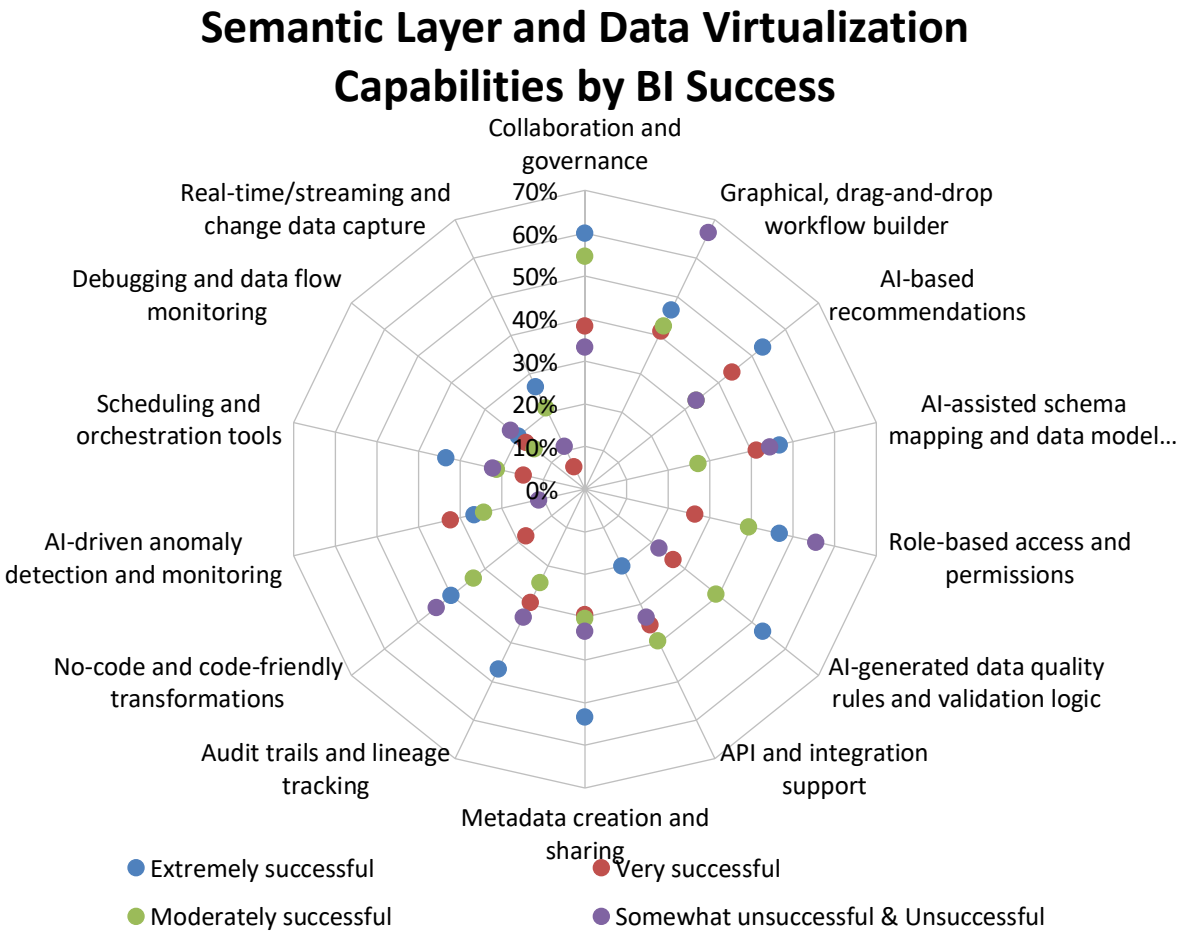


Figure 33 -- Semantic Layer and Data Virtualization Capabilities by BI Success

When it comes to prioritizing semantic layer and data virtualization capabilities, AI-mature organizations and beginners often take opposite approaches. Organizations at early stages in their AI journey, where AI capabilities are emerging and in an experimental phase, more often identify a wider range of these capabilities as critical. Fifty percent or more of these organizations highlight all such capabilities except for debugging, AI-driven anomaly detection, scheduling and orchestration and real-time/streaming (fig. 34). In contrast, organizations at an intermediate level of AI maturity identify only one capability, AI-based recommendation, as important with more than 50% frequency. The implication here is that organizations at an early stage with AI have not yet developed the experience to know what capabilities are most important for their specific initiatives.

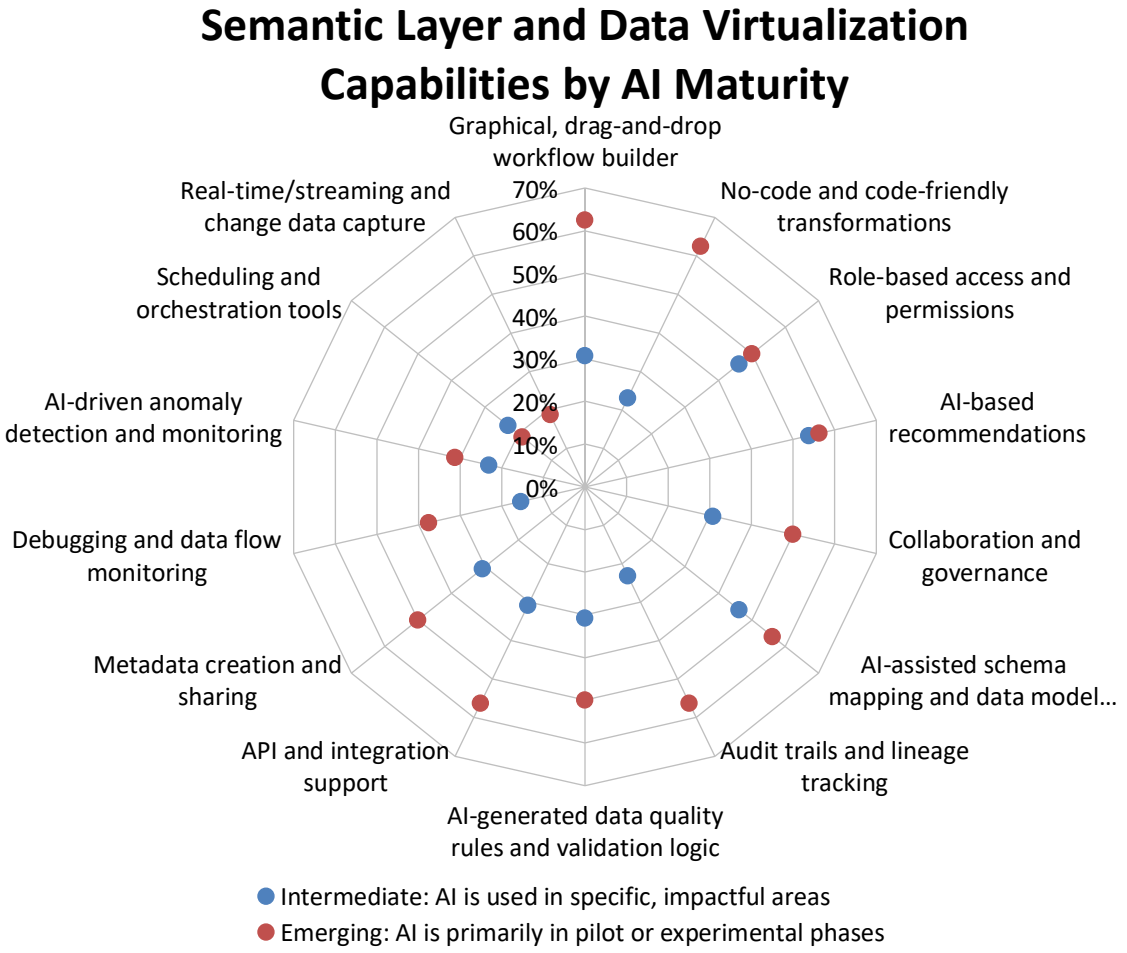


Figure 34 -- Semantic Layer and Data Virtualization Capabilities by AI Maturity

Semantic Layer and Data Virtualization Features

Across the wide range of features that enable semantic layer and data virtualization, users view every capability as important. In fact, over 80% of survey respondents highlight every feature as important, very important or critical (fig. 35). Ability to integrate with various data sources and availability of APIs and connectors are perceived as the highest priority, with around 50% of respondents citing these as critical. This reflects the increasing need for semantic layer and data virtualization capabilities to interact with a wide variety of data types on a myriad of platforms. Ability to create and manage calculated measures and support for multidimensional models garner significant attention from customers as well, with around 80% of respondents indicating these features are very important or critical. The market's attention to these top four features is a clear mandate for technology providers' continued investment in these areas.

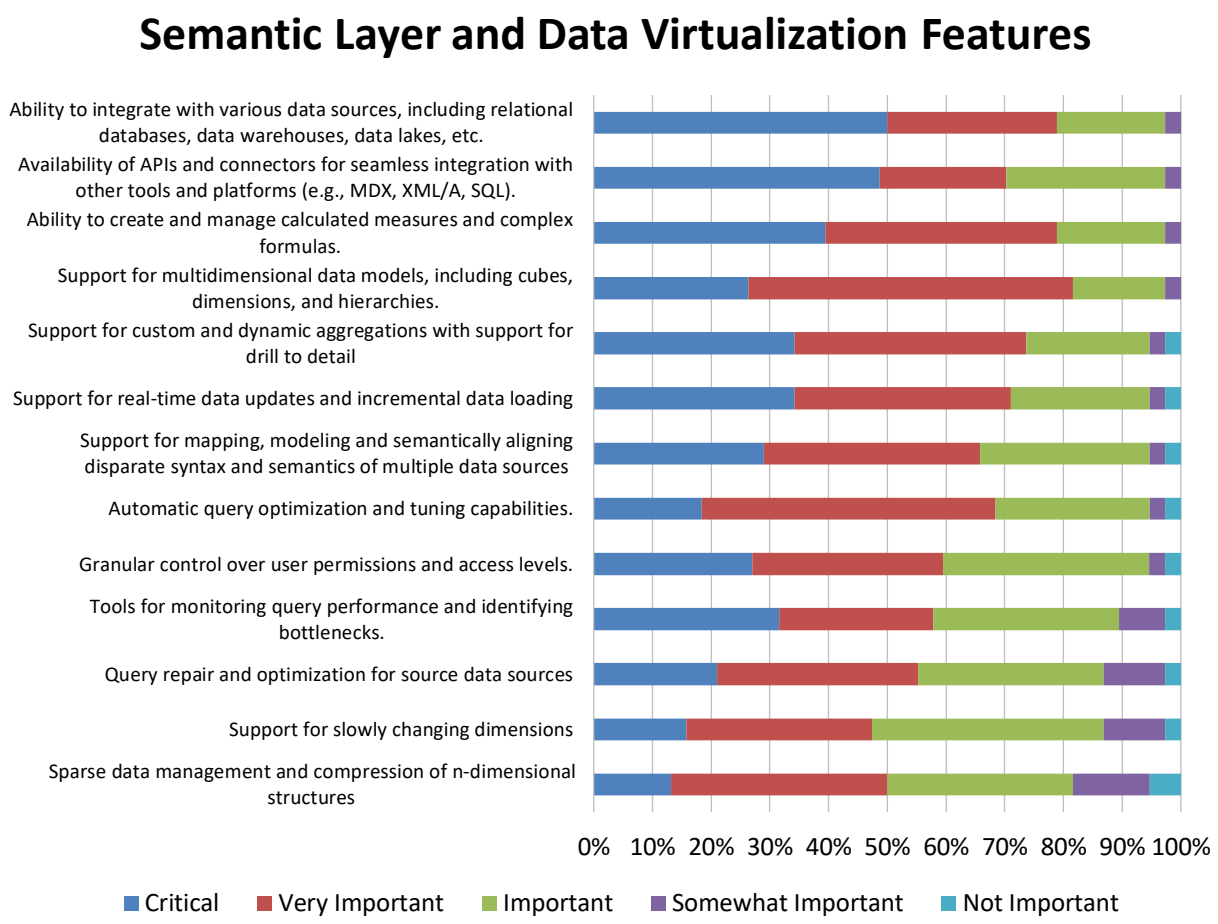


Figure 35 -- Semantic Layer and Data Virtualization Features

Organizations implementing semantic layer and data virtualization are fairly well aligned and consistent in their views on feature importance across geographic regions (fig. 36). However, subtle regional variants are apparent. North American organizations rate ability to integrate with various data sources and ability of APIs and connectors as the two most important features, at a 4.5 level for each. While EMEA organizations rate these same features highly, they consider support for custom and dynamic aggregations as even more important, rating this feature at a 4.27 level. Organizations in Asia Pacific reflected a very balanced perception of importance across the range of features, rating none above 4.0 and all at least 3.3 on average.

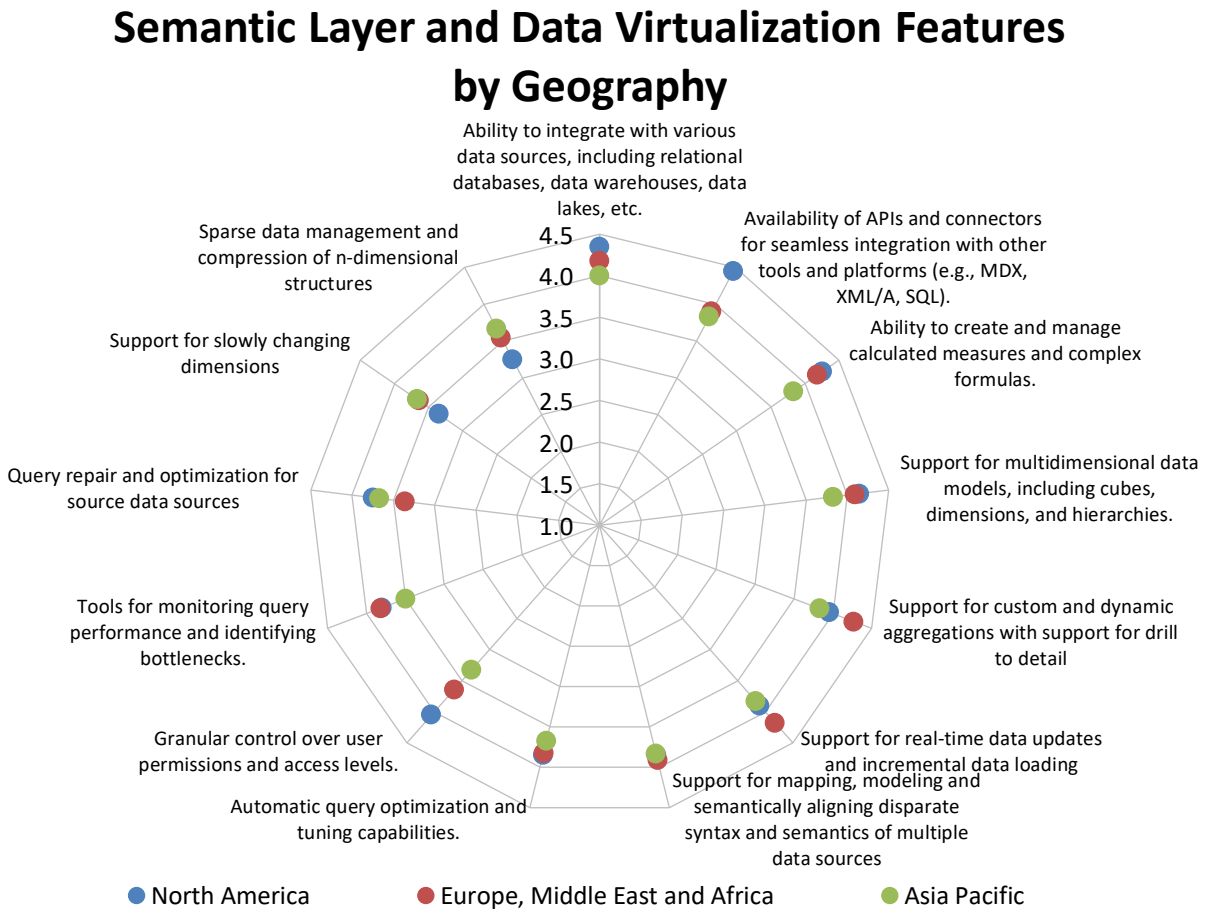


Figure 36 -- Semantic Layer and Data Virtualization Features by Geography

Organizations of all sizes are fairly well aligned on their perceptions of the most critical features supporting semantic layer and data virtualization (fig. 37). The ability to integrate with various data sources, availability of APIs and connectors, ability to create and manage calculated measures, and support for multidimensional data models were rated as important by all organization size segments within a range of 3.8 to 4.5. After these top four features, variances emerge based on organization size. Larger organizations, those with either 1,001-10,000 employees or more than 10,000 employees, perceive support for custom and dynamic aggregations, and real-time data updates, as more important than do their smaller peers. The remaining features are rated as more important by the larger organizations than those with 101-1,000 employees, which makes sense because those larger organizations likely face much higher complexity. Surprisingly, the smallest organizations with 1-100 employees rate the remaining features higher than do all other size segments.

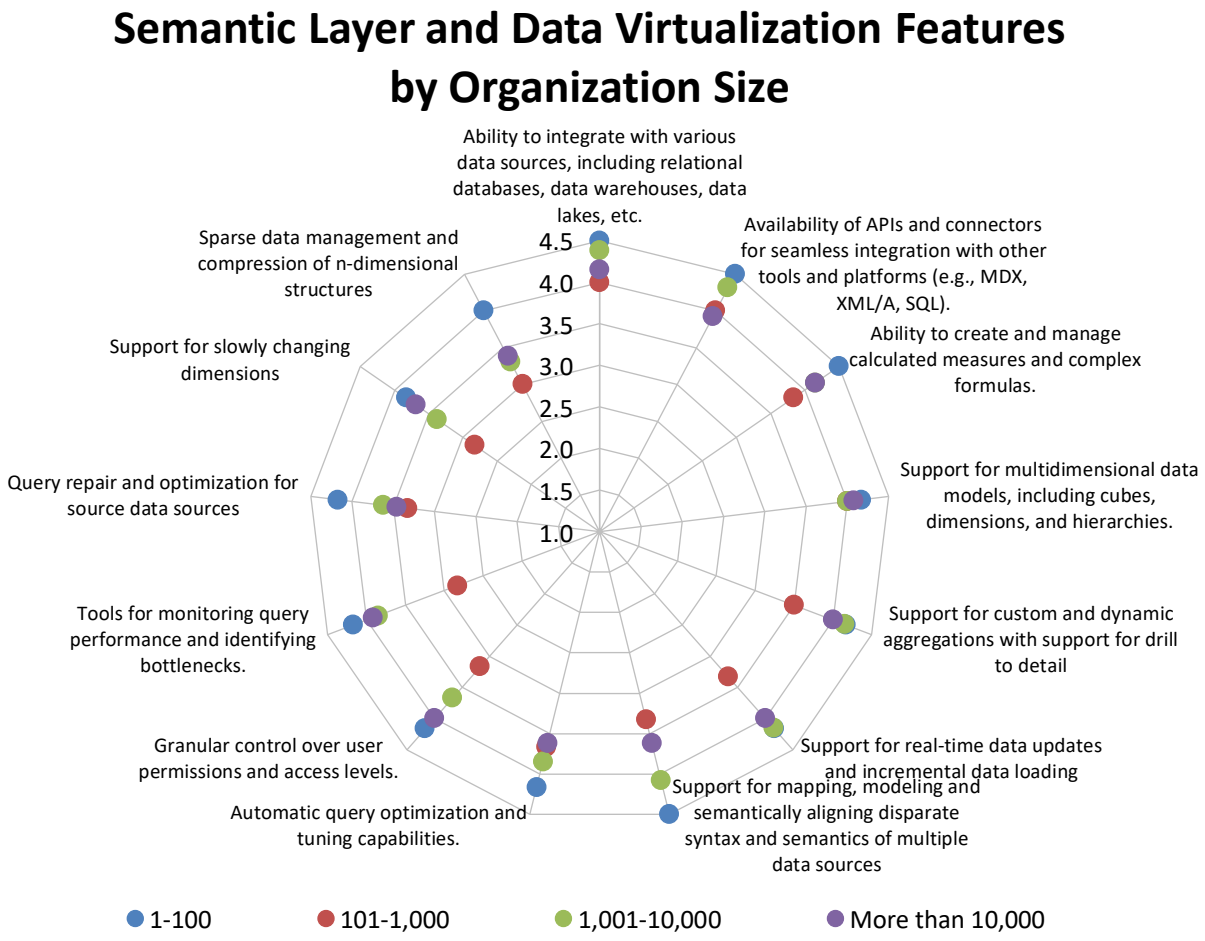


Figure 37 -- Semantic Layer and Data Virtualization Features by Organization Size

Survey data shows minimal differences in the importance organizations place on semantic layer and data virtualization features according to their success with BI initiatives. Those organizations reporting their BI efforts are extremely successful rate feature importance nearly the same as those considered moderately successful (fig. 38). That is, both segments rate most features within a 10% range of each other. For the most important features on an industry-wide basis, the extremely successful segment does rate them slightly higher than do their moderately successful peers. The remaining features are rated slightly higher by the moderately successful cohort. The biggest deviations occur within support for mapping, modeling and semantic alignment, which moderately successful organizations rate about 7% higher, and support for slowly changing dimensions, which extremely successful organizations rate 13% higher.

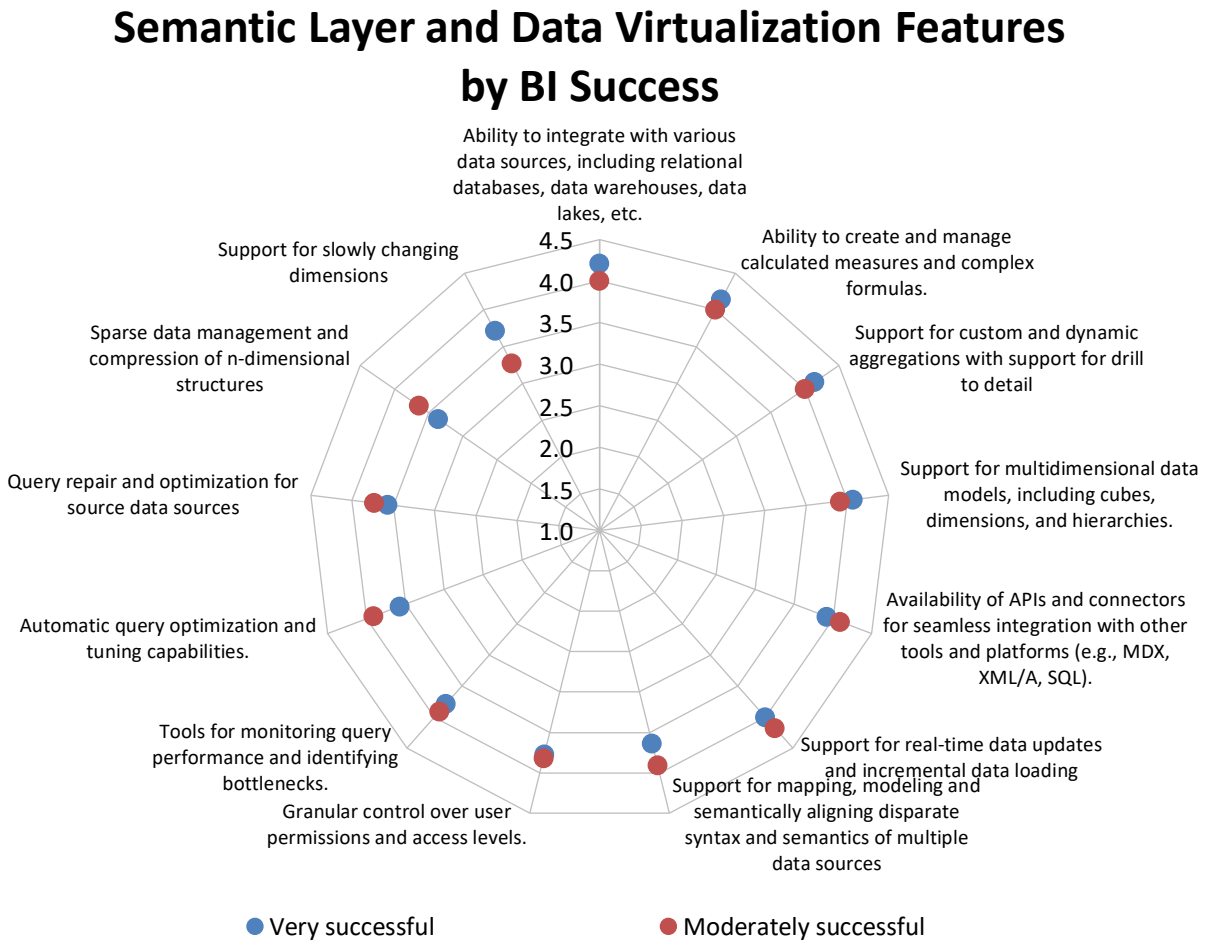


Figure 38 -- Semantic Layer and Data Virtualization Features by BI Success

Just as with BI success, the importance of semantic layer and data virtualization features is consistently linked to the organization's AI maturity (fig. 39). Organizations at both the emerging and intermediate levels of AI maturity tend to rate nearly all features at around the same level of importance, although the intermediate-level organizations rate most features higher. Substantial differences show with ability to integrate various data sources, which intermediate AI maturity organizations rated 17% higher than those at an emerging AI level. Larger gaps exist for some of the lesser-importance features. For example, support for slowly changing dimensions was considered 38% more important by intermediate maturity organizations than by those with emerging AI maturity.

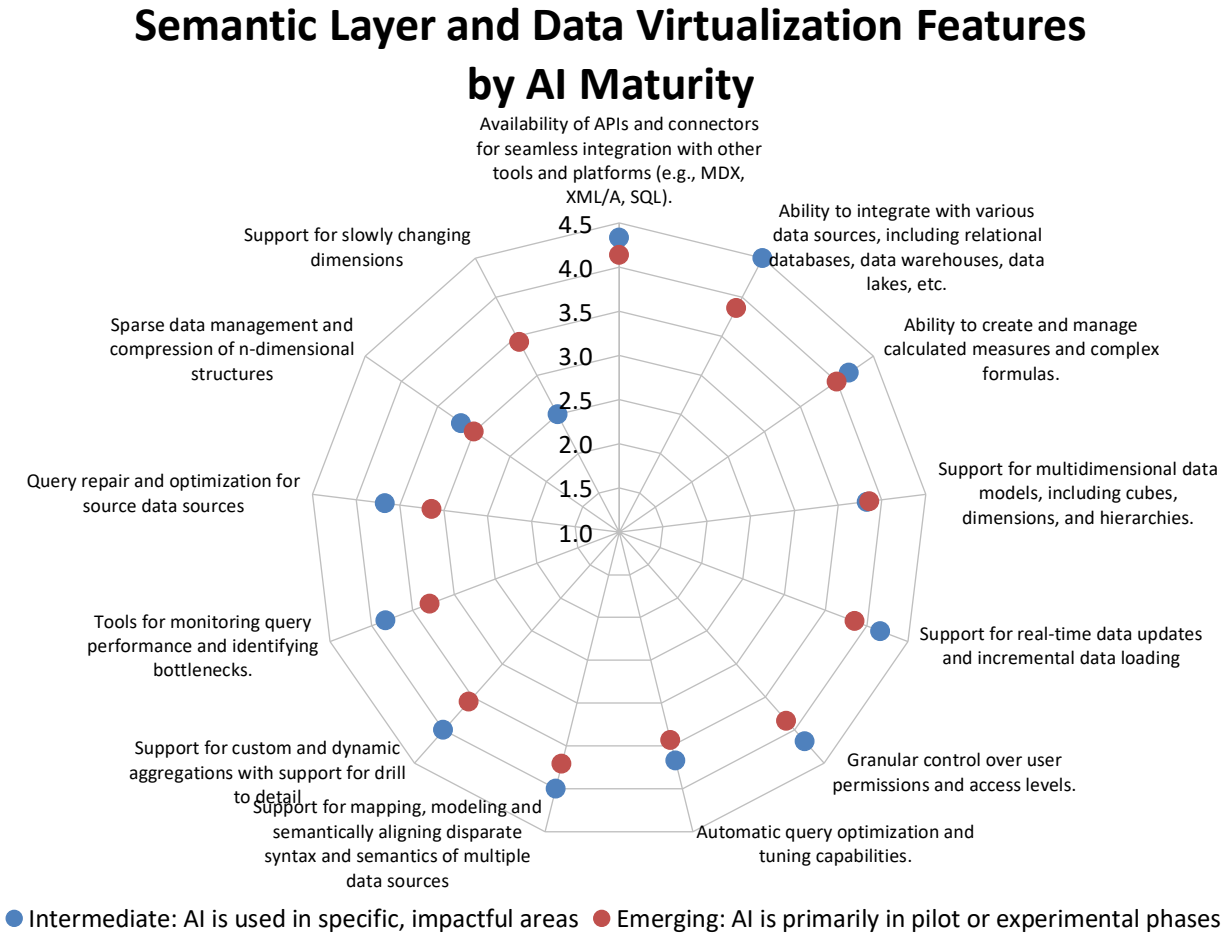


Figure 39 -- Semantic Layer and Data Virtualization Features by AI Maturity

ADI Management Features Relevant for Semantic Layer and Data Virtualization

To deploy semantic layer and data virtualization capabilities in a controlled and efficient manner, organizations must take advantage of various management features available in ADI offerings. Survey data shows the market clearly focused on "control," with security, privacy and cost-related features rising to the top. Fifty-three percent of organizations indicate that security features are most important in this regard—the only management feature category garnering a majority of responses (fig. 40). Cost monitoring and optimization continues to rise in visibility, with 45% of respondents identifying this feature as important. The remaining feature sets, led by privacy management at 37%, are perceived by around one-third of organizations as important in the context of semantic layer and data virtualization.

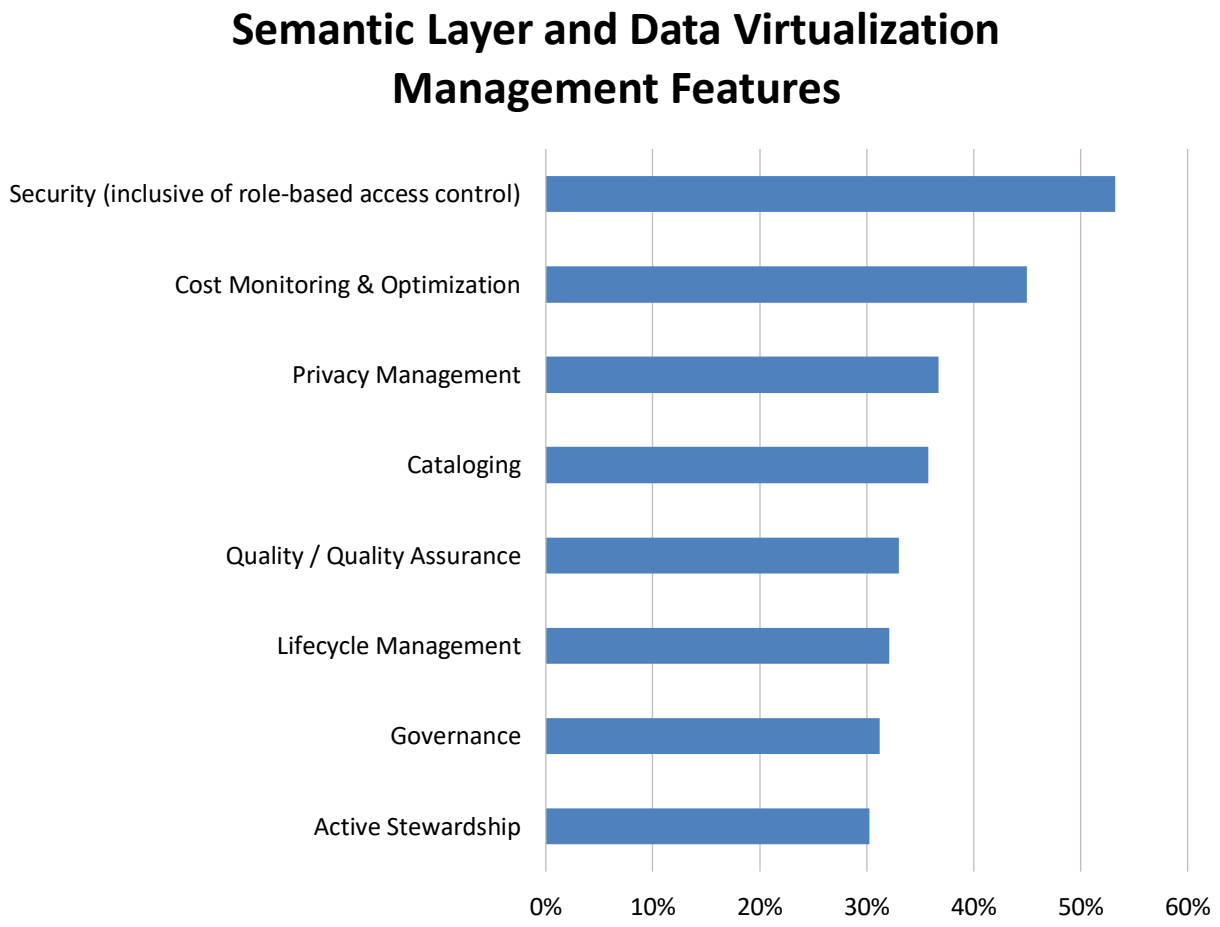


Figure 40 -- Semantic Layer and Data Virtualization Management Features

There is a significant difference in how organizations prioritize ADI management features compared to semantic layer and data virtualization. North American organizations align well with the overall industry perspective, identifying security, cost monitoring and privacy as consistently important at a 45%-55% frequency (fig. 41). In contrast, EMEA organizations view security and cost monitoring as important above a 50% range, but consider privacy management as much less important, at 30%. While Asia Pacific organizations prioritize security, they consider all other features as much less important, identifying each with 40% or lower frequency. Latin American organizations reflect the greatest variability across features, with nearly 70% considering security as important, but less than 20% likewise rating cost monitoring and privacy management.

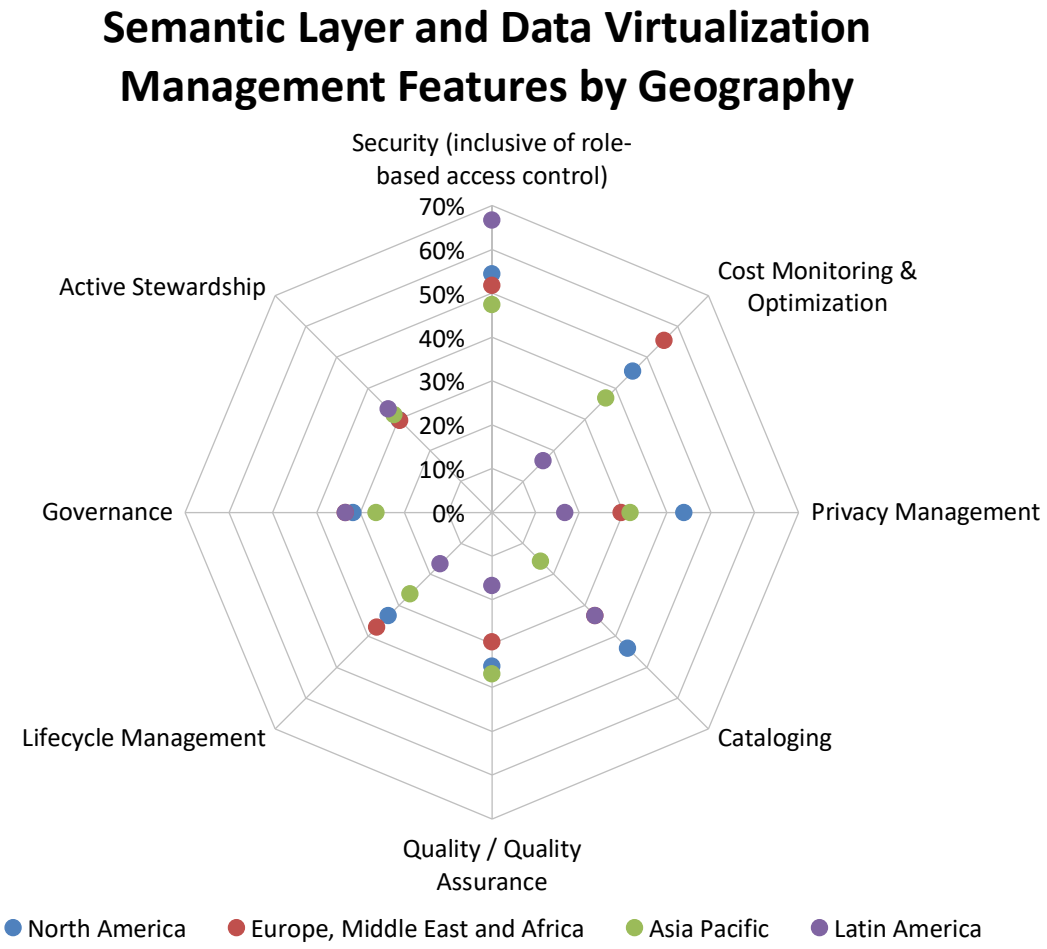


Figure 41 -- Semantic Layer and Data Virtualization Management Features by Geography

Perceptions of ADI management features for semantic layer and data virtualization vary even more widely across industries. No industry sectors align consistently with the overall market ratings of feature importance (fig. 42). As an example, 80% of manufacturing organizations rate security as important, but this same sector rates cost monitoring and privacy as important with only 30%-40% frequency. Instead, manufacturing prioritizes cataloging and lifecycle management at a 50% rate. Seventy-eight percent of consumer services organizations indicate cost monitoring is important, far more than consider security and privacy features important. A similar pattern appears for most industries. This is critical point for technology providers to understand—they must focus management features on specific industry needs rather than broad market averages.

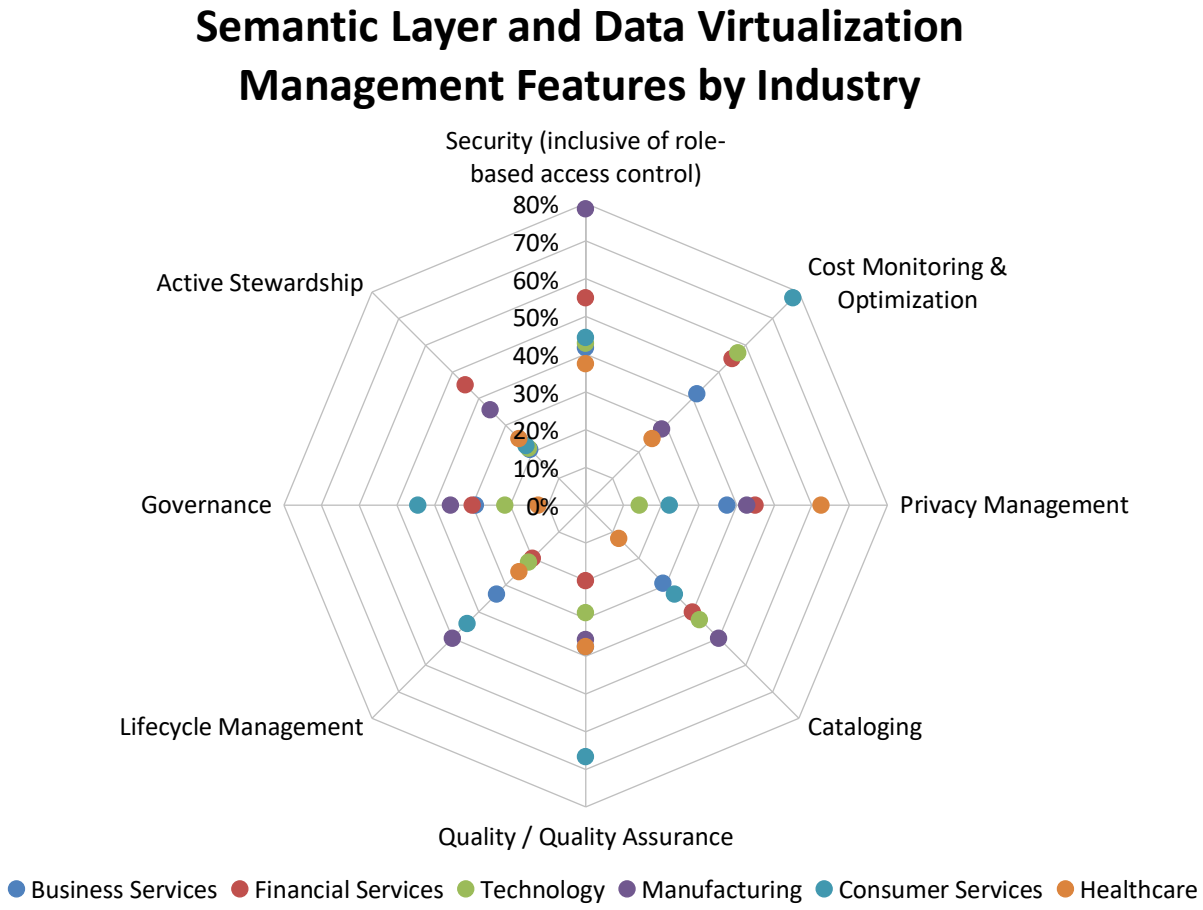


Figure 42 -- Semantic Layer and Data Virtualization Management Features by Industry

Similar to industry trends, organization size significantly influences priorities regarding management features for semantic layer and data virtualization. Seventy-one percent of the smallest organizations (with 1-100 employees) place importance on security features, with no consensus on importance of anything else (fig. 43). Small organizations with 101-1,000 employees tend to indicate importance across all management features at a fairly consistent and balanced level, with only security rated important by a slight majority. And larger organizations with 1,001-10,000 employees and more than 10,000 employees align more closely with the overall market averages. These respondents are more likely to indicate importance of security, cost monitoring and privacy management features than all other features, with frequency in the 30%-55% range.

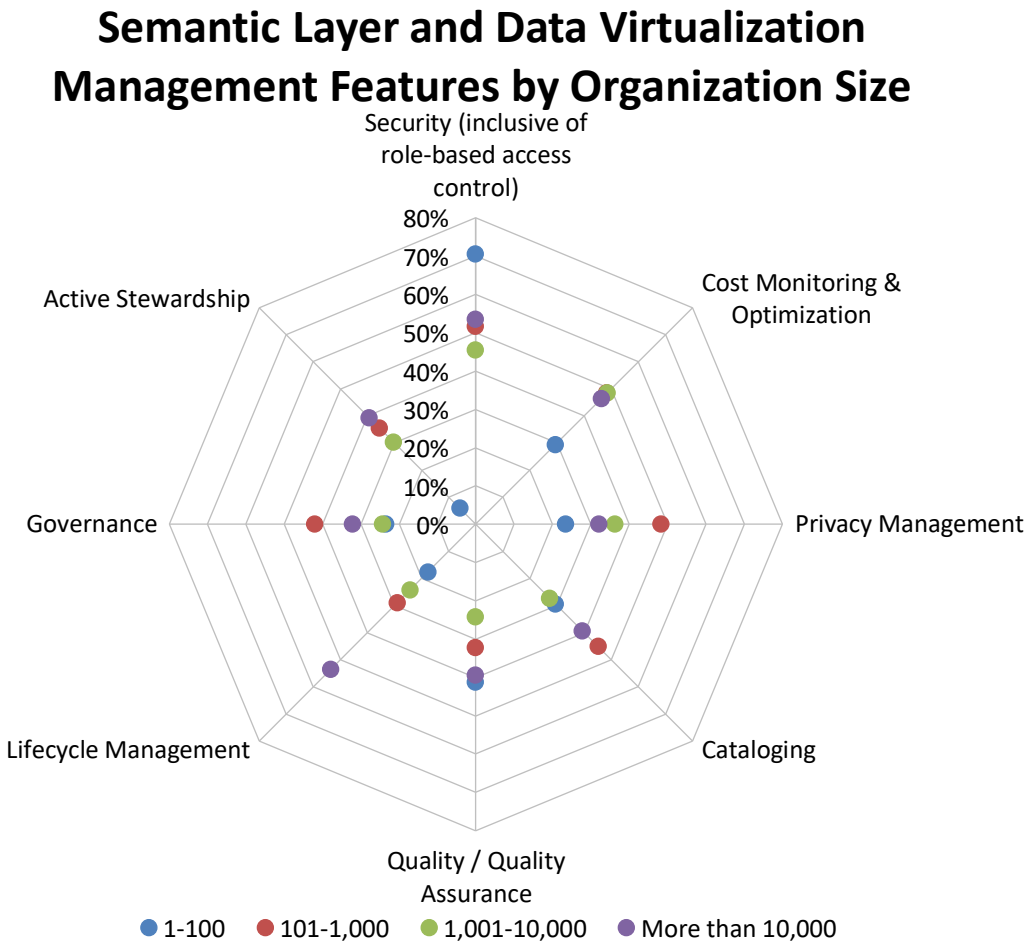


Figure 43 -- Semantic Layer and Data Virtualization Management Features by Organization Size

Organizations whose BI efforts are highly successful prioritize management features for semantic layer and data virtualization very differently from the overall market averages. While the moderately successful and somewhat unsuccessful organizations identify security and privacy as important, they rate all other features as important with less than 40% frequency (fig. 44). In contrast, only 33% of organizations reporting their BI initiatives are extremely successful rate security as important, and only 11% do so for privacy. Rather, these extremely successful organizations tend to rate lifecycle management and quality much higher, with 44% of them doing so for both features. Very successful and moderately successful organizations reflect more consistent balance across all features.

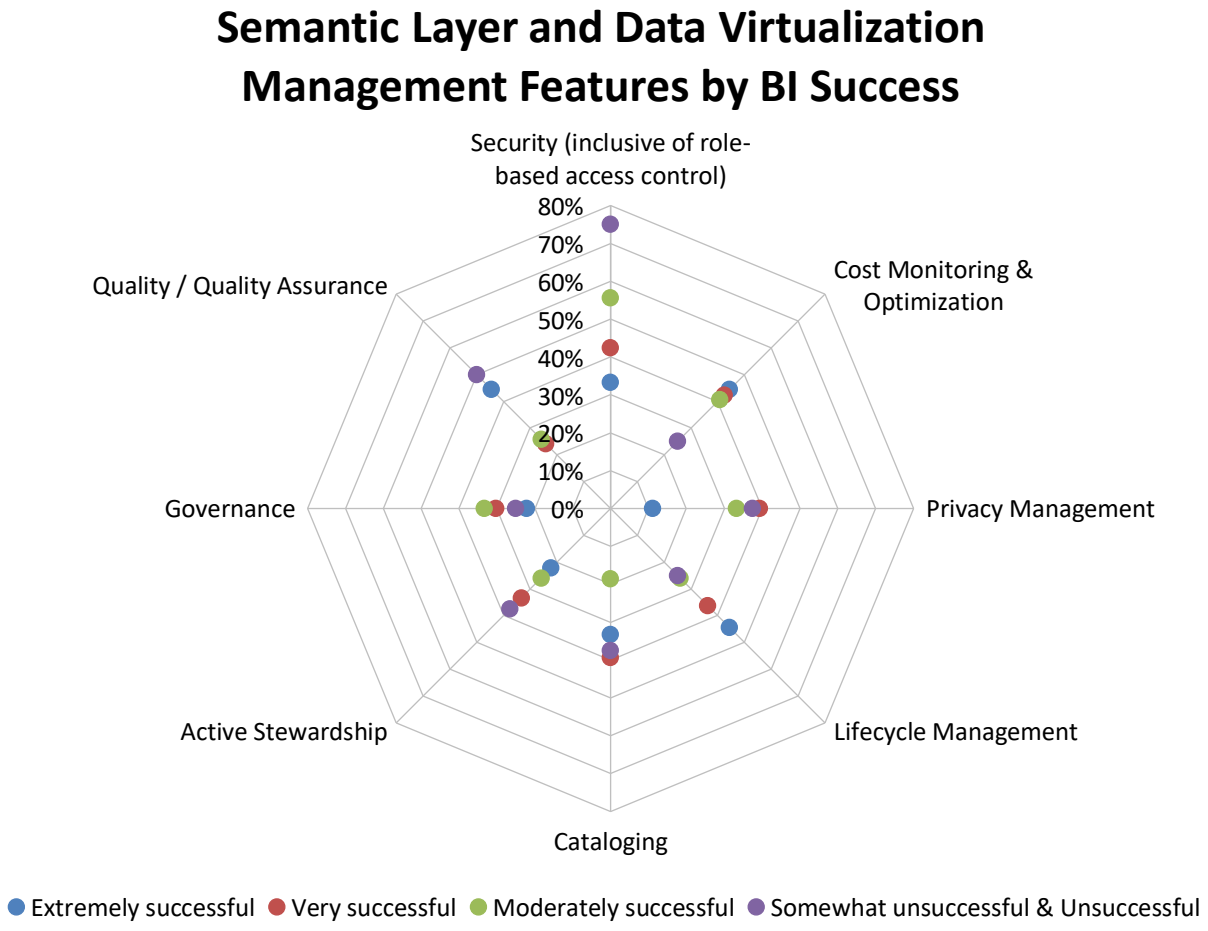


Figure 44 -- Semantic Layer and Data Virtualization Management Features by BI Success

ADI Integration Techniques Relevant for Semantic Layer and Data Virtualization

A key factor in deploying a semantic layer and data virtualization is how they integrate with other ADI components, various data sources, other types of systems, and more. When asked to identify which ADI integration techniques are most relevant for semantic layer and data virtualization, a majority of 52% highlight data federation/virtualization (fig. 45). This is unsurprising, since semantic layers are increasingly delivered in a virtualized manner, integrating data from disparate and distributed sources. Thirty-nine percent of respondents indicate identity and access management integration as important, and 38% cite the importance of SQL query interfaces. Cloud-native integration and API-based integration are deemed important by 36% and 35% of respondents, respectively. All other integration techniques are rated important by less than one-third of respondents.

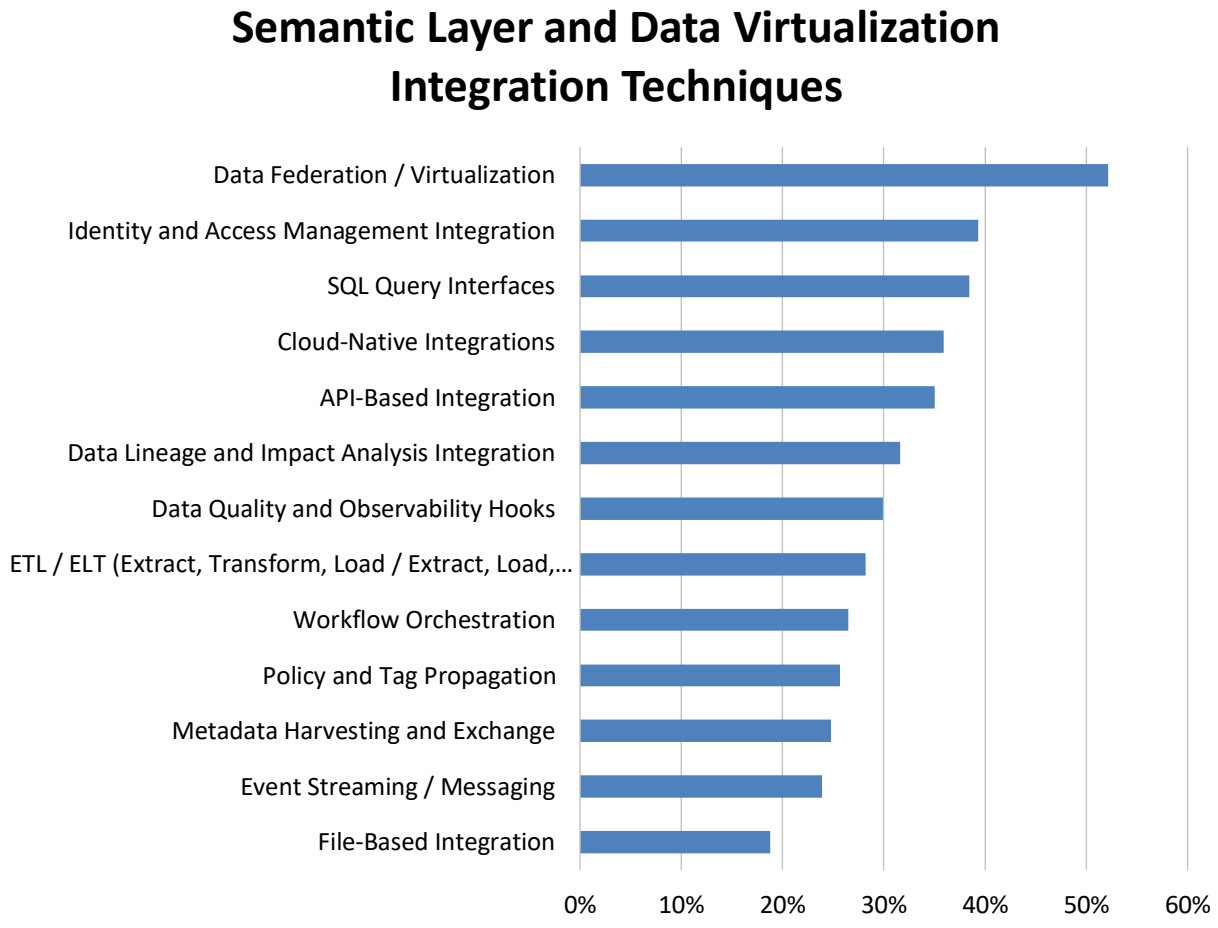


Figure 45 -- Semantic Layer and Data Virtualization Integration Techniques

Geographic regions express significant differences in their preference for integration techniques in support of semantic layer and data virtualization (fig. 46). Asia Pacific organizations indicate data federation/virtualization as important with the greatest frequency, at 57%, followed by cloud-native integrations at 52% and event streaming at 48%. In contrast, North American organizations prioritize data federation at a slightly lower level of 50%, followed by a mix of SQL interfaces and API-based integration at 44%. EMEA organizations align with a blend of the APAC and North American preferences, with 57% indicating data federation as important and 44% indicating SQL interfaces are important. EMEA respondents rate the importance of most other techniques in the range of 15%-30%. Around 43% of Latin American organizations identified data federation, SQL interfaces, cloud-native integration and event streaming as important.

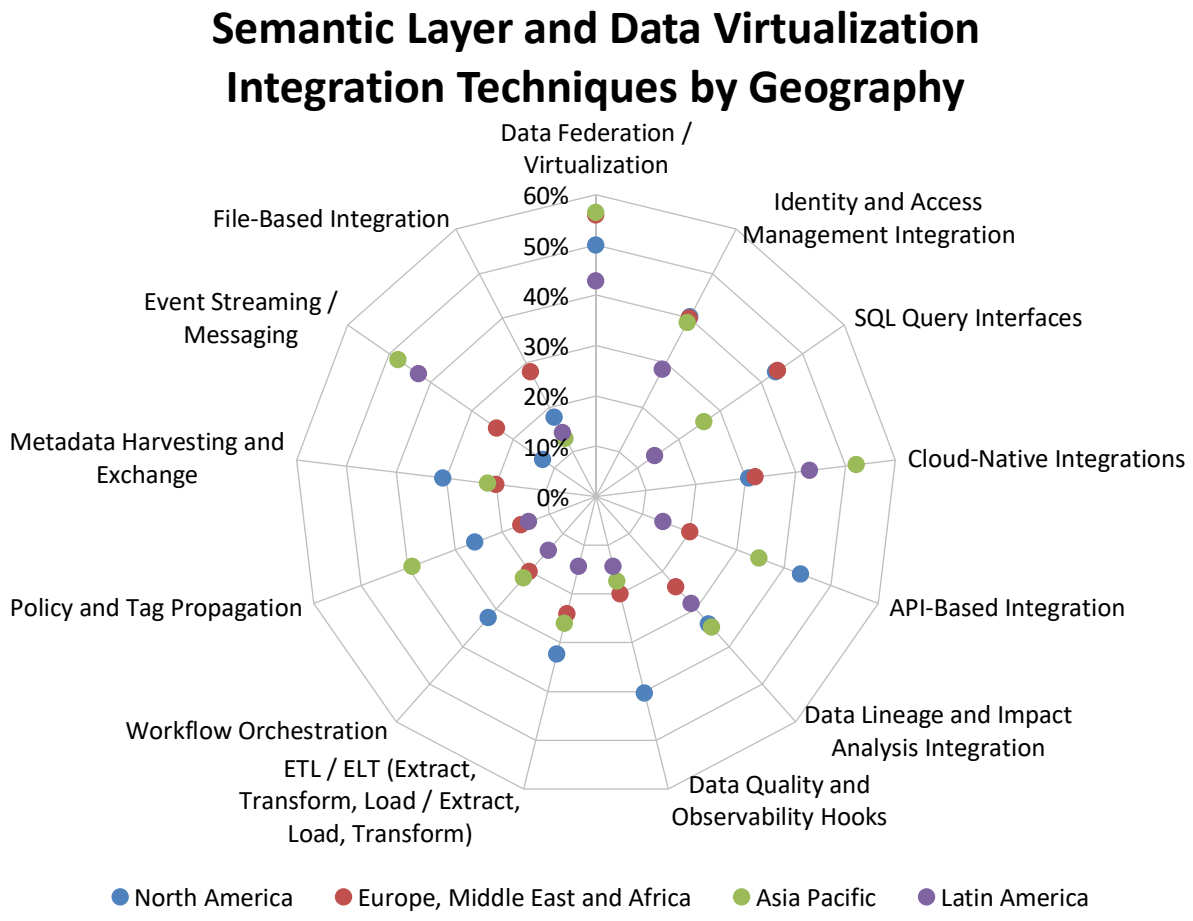


Figure 46 -- Semantic Layer and Data Virtualization Integration Techniques by Geography

We observe significant difference across industries regarding organizations' preferred integration techniques for semantic layer and data virtualization (fig. 47). Sixty-seven percent of financial services organizations rate data federation/virtualization as important, making it the top choice in that sector. Eighty-seven percent of consumer services organizations indicate the importance of cloud-native integrations, the highest for that industry. Data quality and observability hooks is the most important technique in healthcare, with 66% of that sector highlighting it. Other industries express a mixture of priorities, with none attracting such a strong majority of respondents.

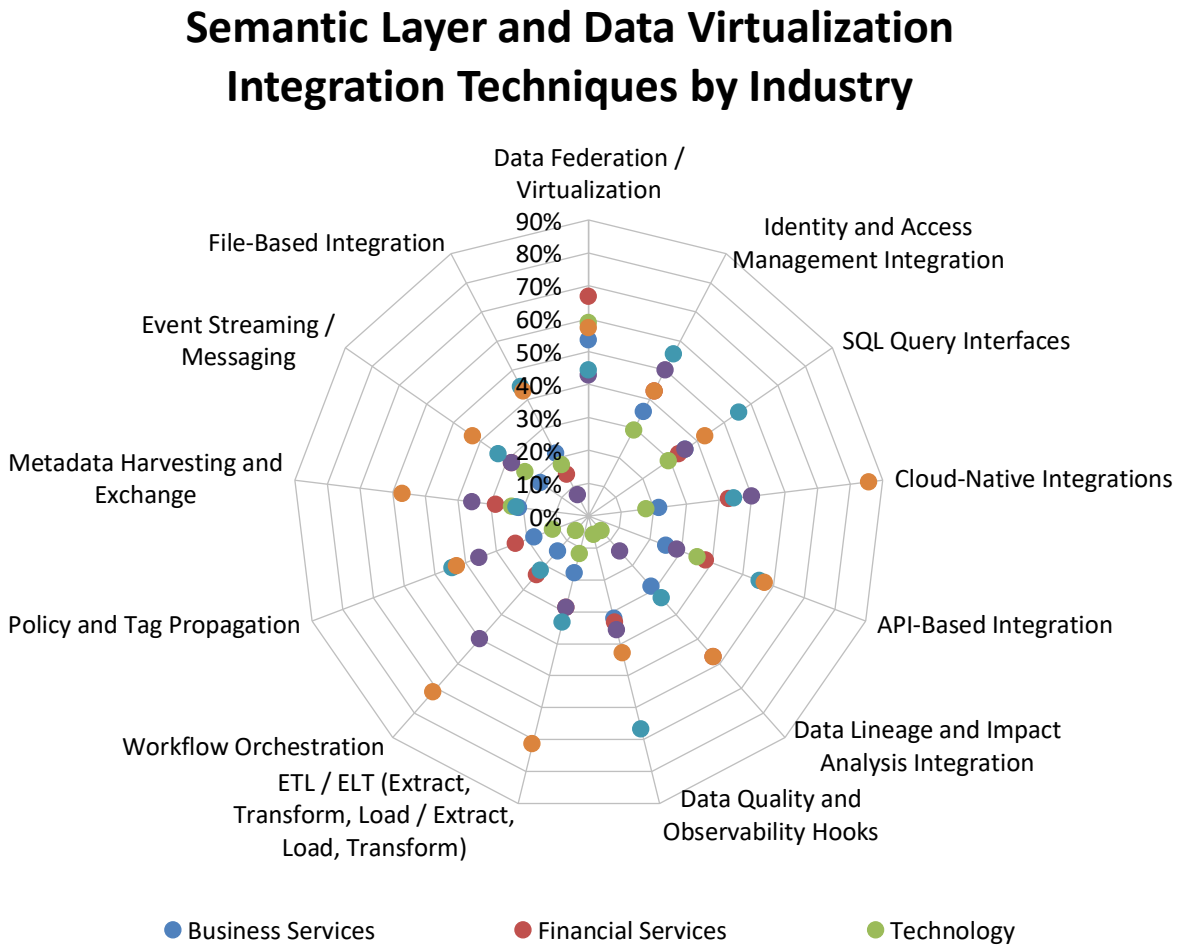


Figure 47 -- Semantic Layer and Data Virtualization Integration Techniques by Industry

As with other ADI components, organizations experiencing different levels of BI success show different preferences for integration techniques in support of semantic layer and data virtualization. Those rating their BI efforts as extremely successful indicate the importance of identity and access management integration, SQL query interfaces, data quality and observability hooks and event streaming/messaging far more frequently than do their peers achieving lower levels of success (fig. 48). For each of those integration techniques, 40% or more of this segment indicated importance. At the other end of the spectrum, organizations experiencing somewhat unsuccessful or unsuccessful BI efforts place more importance on ELT/ETL, workflow orchestration and data lineage, rating each at over 50%. Very successful and moderately successful organizations perceive all integration techniques as only minimally to moderately important, at rates of 10%-50%.

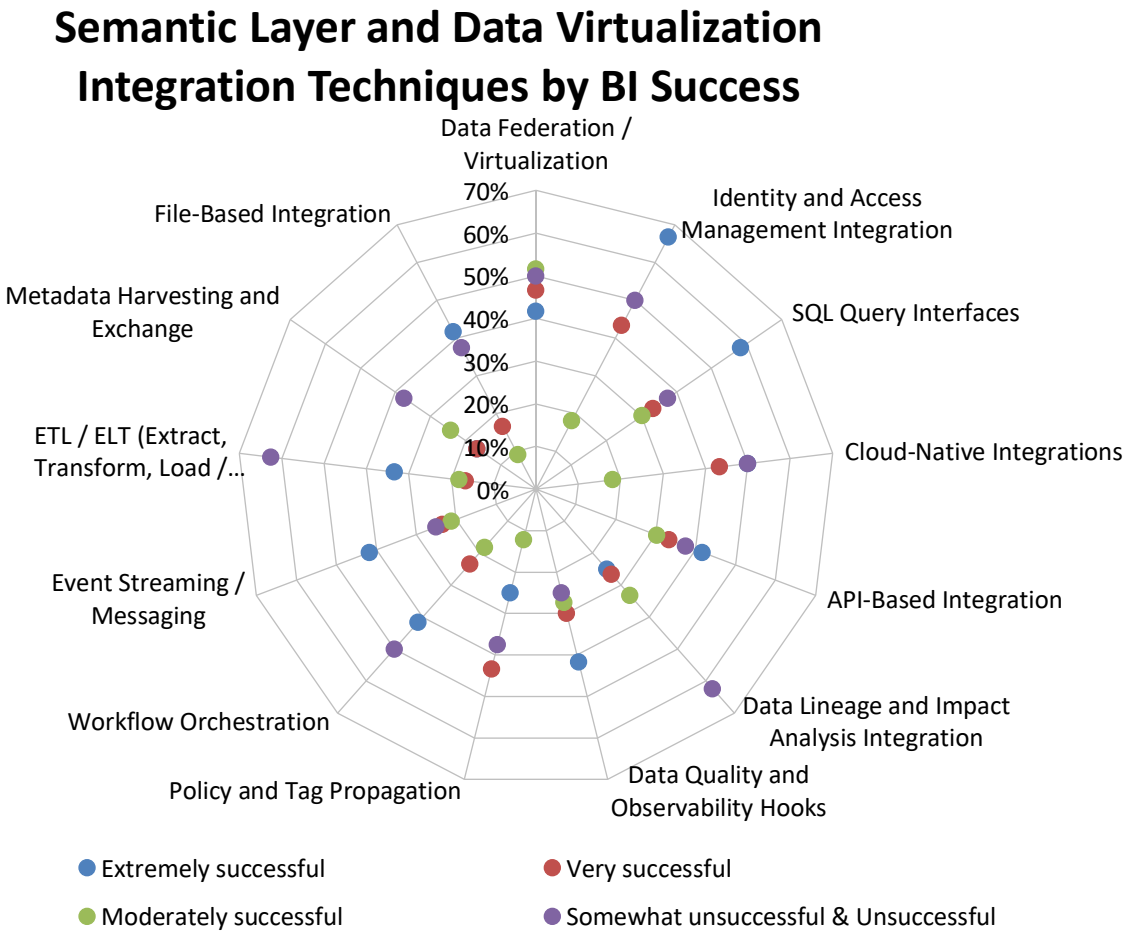


Figure 48 -- Semantic Layer and Data Virtualization Integration Techniques by BI Success

Organizations at different stages of AI maturity tend to emphasize different integration techniques in their semantic layer and data virtualization deployments. Those at an intermediate level of maturity with AI show a clear preference for data federation/ virtualization, with 70% of these organizations rating this integration technique as important (fig. 49). They also view identity and access management integration (54%) and SQL query interfaces (46%) as important. Those organization at an emerging level of AI maturity instead emphasize API-based integration (57%), data quality and observability hooks (57%), data lineage and impact analysis (57%) and policy and tag propagation (50%).

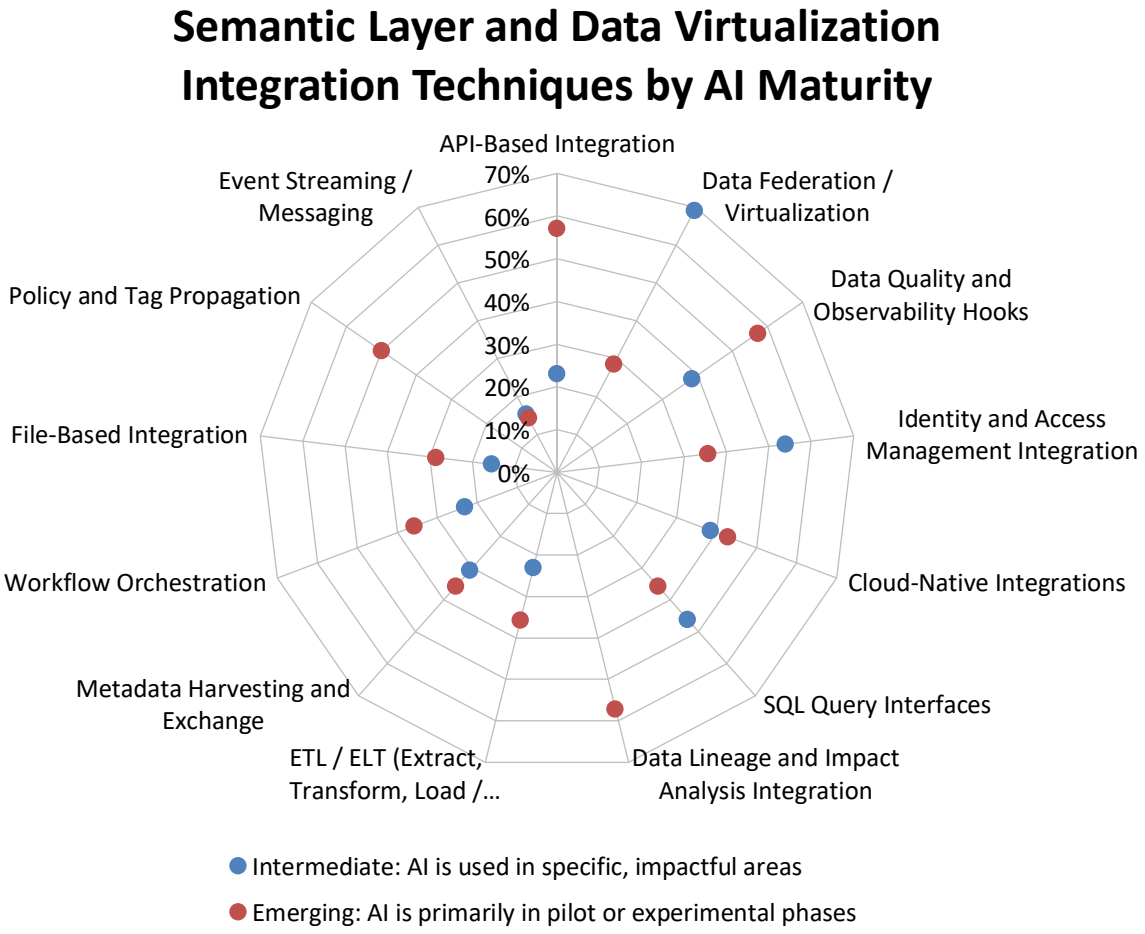


Figure 49 -- Semantic Layer and Data Virtualization Integration Techniques by AI Maturity

Deployment of Semantic Layer and Data Virtualization Capabilities

As with all other ADI use cases and components, organizations implementing semantic layer and data virtualization show a strong preference for cloud-based deployment options (fig. 50). A near-majority of 48% indicate public cloud deployment is crucial to their work in this area. Thirty-five percent identify private cloud deployment as important, and 33% indicate hybrid environments (on-premises and cloud combined) are of interest. Less than 25% of respondents specify a preference for platform-independent deployment, on-premises deployment and multi-cloud support for semantic layer and data virtualization capabilities.

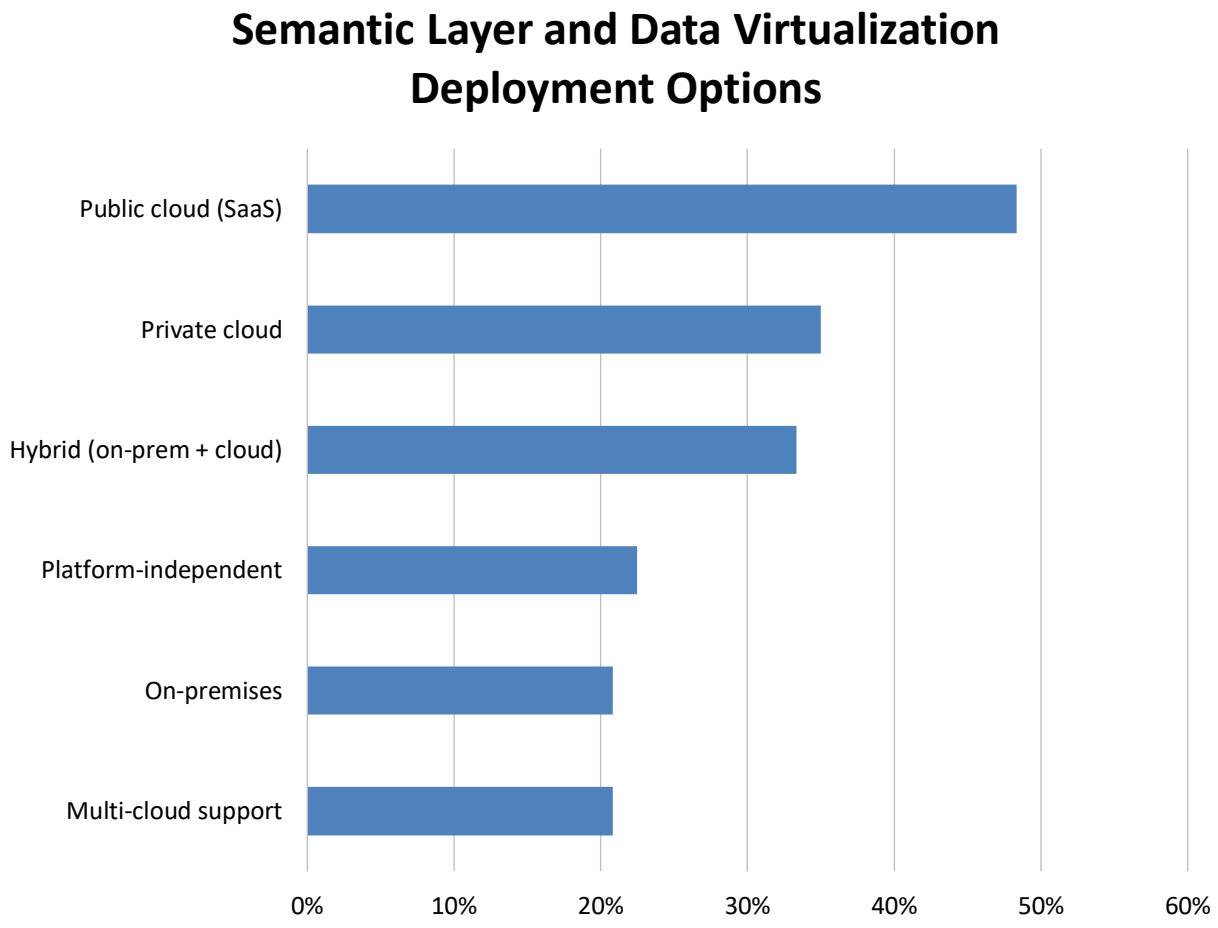


Figure 50 -- Semantic Layer and Data Virtualization Deployment Options

Regional deployment preferences for semantic layer and data virtualization diverge from market averages, matching only in their shared preference for public cloud deployment (fig. 51). Between 47% and 52% of organizations in all regions view public cloud deployment as important, showing a high degree of global consistency. Significant differences across regions emerge for the other top deployment options. Asia Pacific and Latin America organizations prefer private cloud at a much higher rate (approximately 50%) than do North American and EMEA organizations (30%). Hybrid deployment preferences range from high to low, with Asia Pacific organizations viewing this option most favorably (52%), followed by EMEA (37%), North America (28%) and finally Latin America (13%).

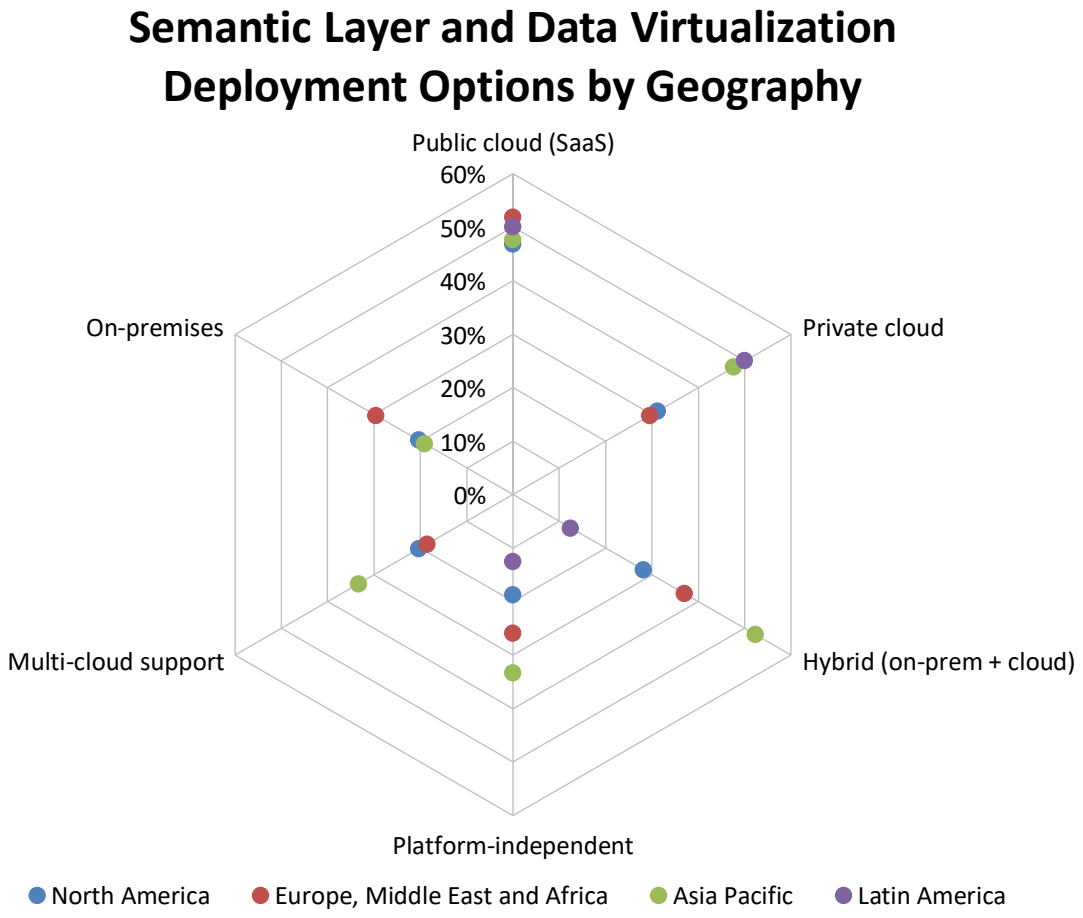


Figure 51 -- Semantic Layer and Data Virtualization Deployment Options by Geography

Deployment options for semantic layer and data virtualization vary substantially across industries, with certain sectors clearly prioritizing a few options (fig. 52). Although adoption of public cloud is consistently viewed as important across industries (at 40%-60% frequency), other deployment options show outliers. For example, 83% of consumer services organizations indicate private cloud is important, far above all other industries. Similarly, 65% of financial services organizations specify a preference for hybrid deployment, well above most other industries. Financial services also is most likely to prioritize on-premises deployment, driven by legacy technology challenges and strict governance requirements.

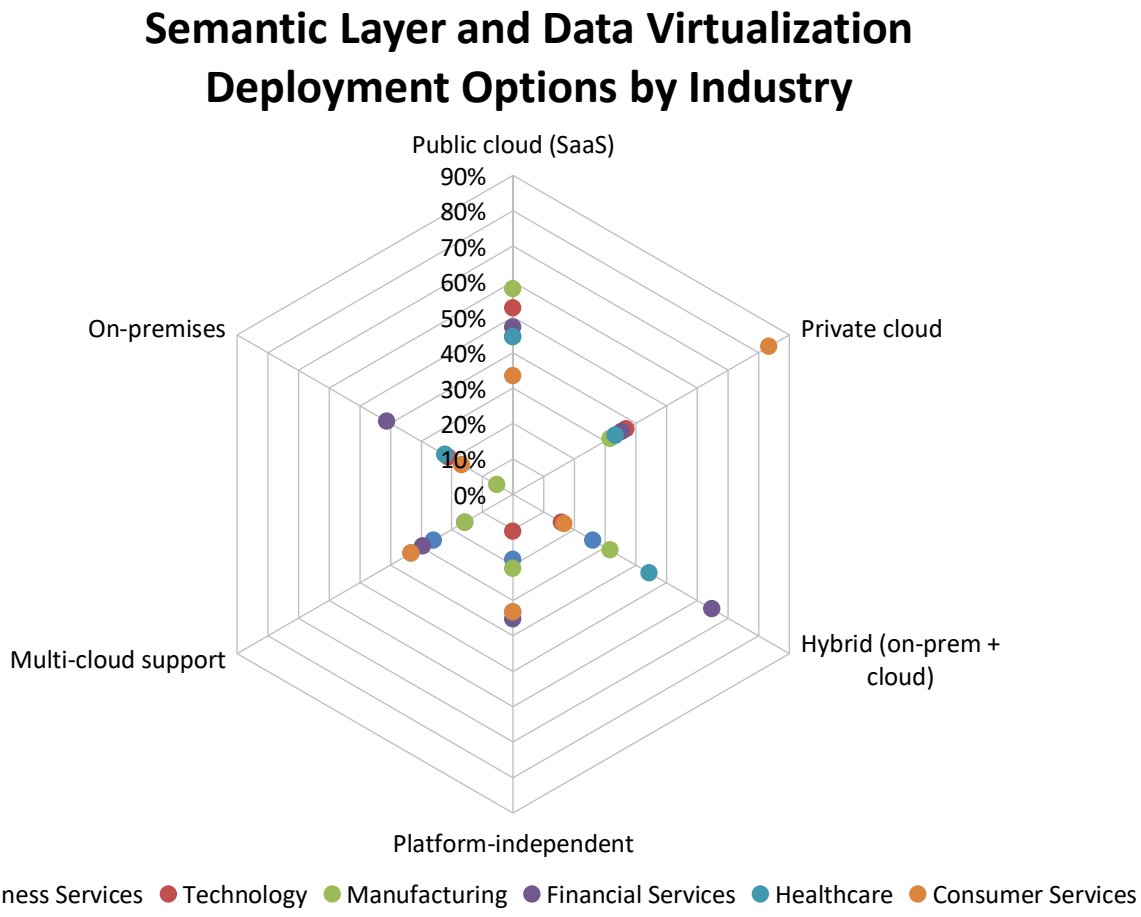


Figure 52 -- Semantic Layer and Data Virtualization Deployment Options by Industry

Organization size heavily influences preferences in deployment options for semantic layer and data virtualization (fig. 53). Smaller organizations, with 1-100 or 101-1,000 employees, indicate the importance of public cloud deployment at a greater frequency (56% and 68% respectively) than larger organizations with 1,001-10,000 or over 10,000 employees (38% and 35% respectively). The opposite is true for hybrid deployments, with larger organizations more frequently favoring this deployment mode than smaller ones. Perhaps surprisingly, 39% of the smallest organizations (1-100 employees) note that on-premises deployment is important, above all other size categories.

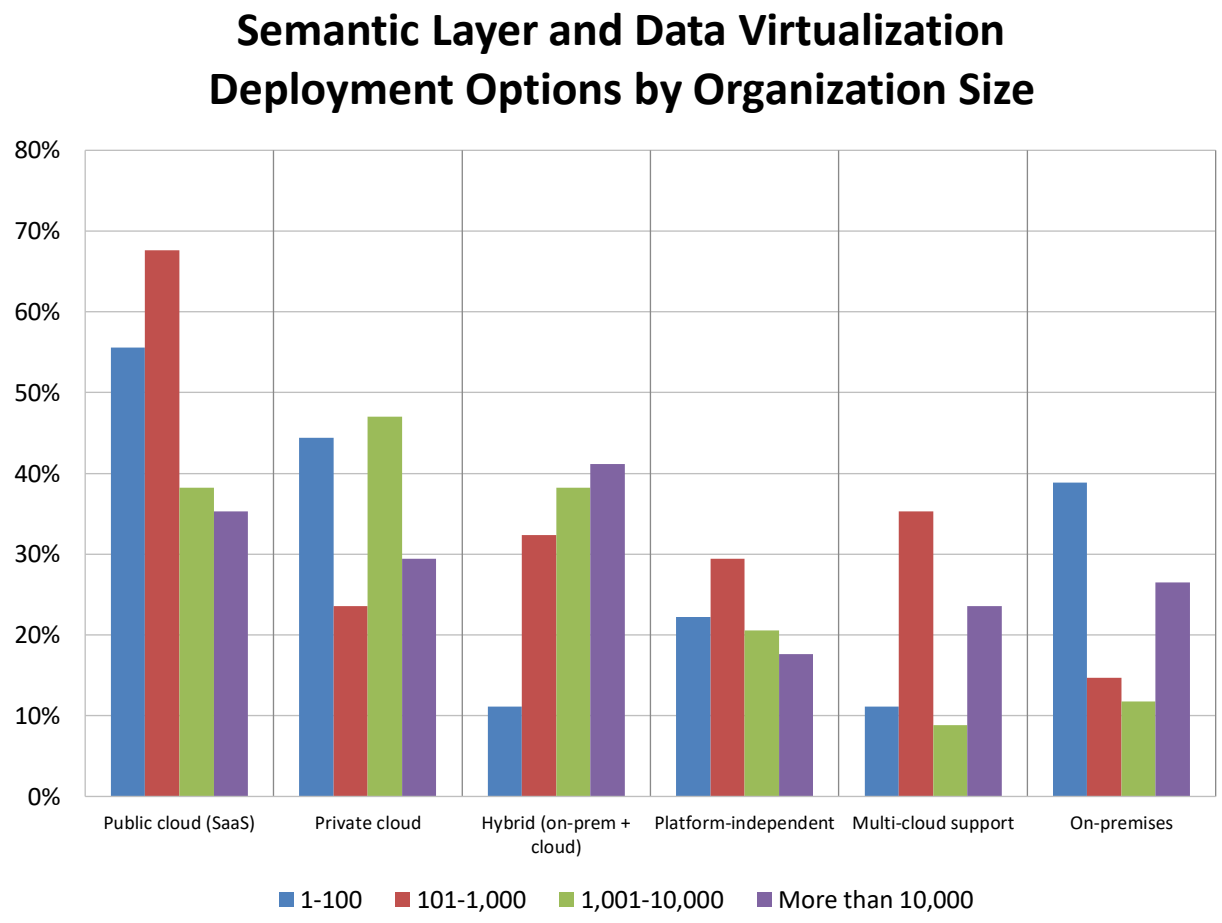


Figure 53 -- Semantic Layer and Data Virtualization Deployment Options by Organization Size

Those organizations achieving higher levels of BI success tend to be open to diverse semantic layer and data virtualization deployment options, rather than overly stressing one particular style of deployment. Organizations reporting their BI efforts are extremely successful cite the importance of public cloud (44%), hybrid (43%), private cloud (43%), multi-cloud (36%) and on-premises (50%) at higher rates than those at nearly all other success levels (fig. 54). In contrast, organizations deemed somewhat unsuccessful or unsuccessful with BI tend to overly emphasize public cloud (50%) and no other deployment options at a level exceeding 33%. This implies less openness to diversity of deployment options and a tendency to force-fit all deployments into one style.

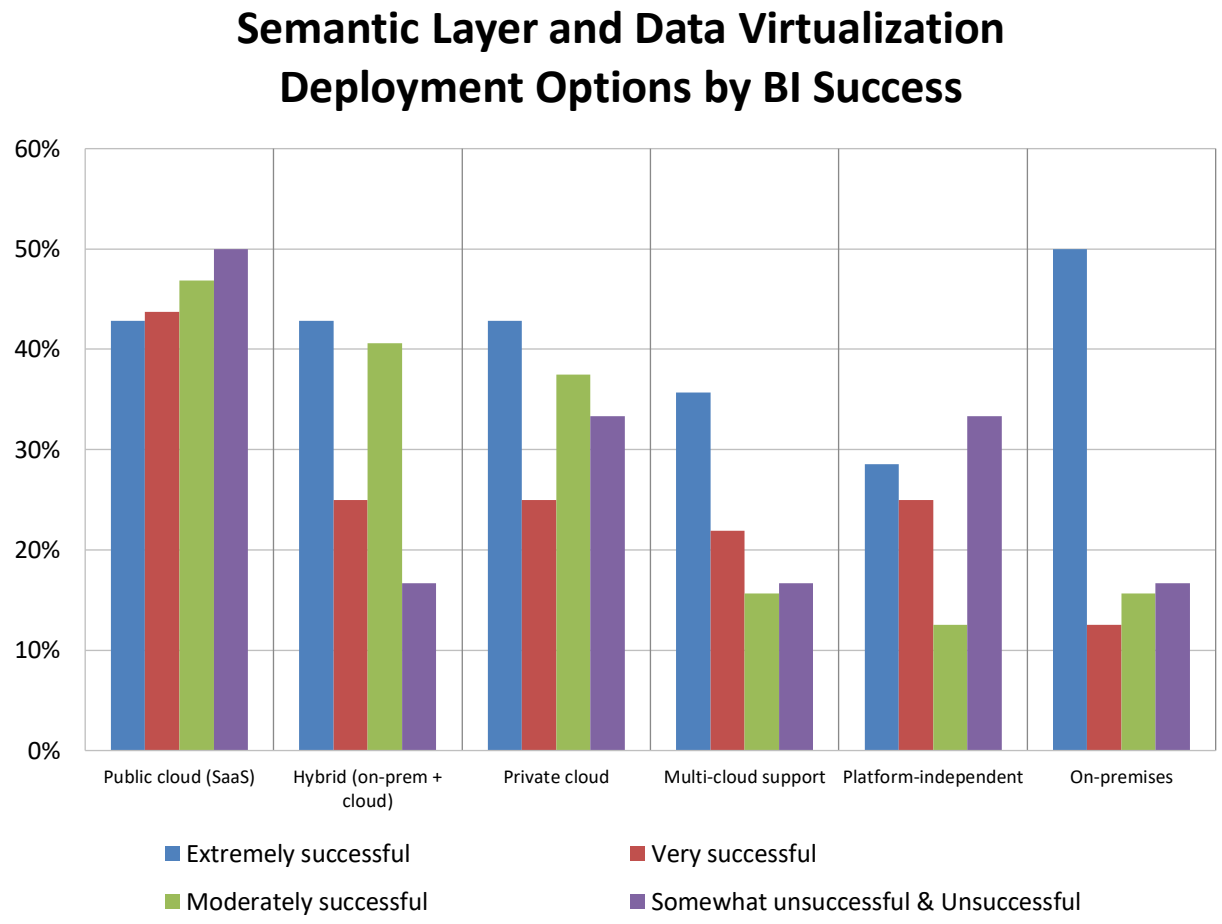


Figure 54 -- Semantic Layer and Data Virtualization Deployment Options by BI Success

Licensing of Semantic Layer and Data Virtualization Capabilities

Customers have a variety of options available to them for licensing semantic layer and data virtualization capabilities within ADI offerings. While no single licensing option is preferred by a majority of organizations, 42% of respondents indicate user-based licensing is attractive (fig. 55), the highest among all options. Computing resources consumed and concurrent use are the next most preferred options, selected by 29%-30% of organizations. Open source is preferred by about 25% of respondents, and data volume licensing is least preferred, by 20%.

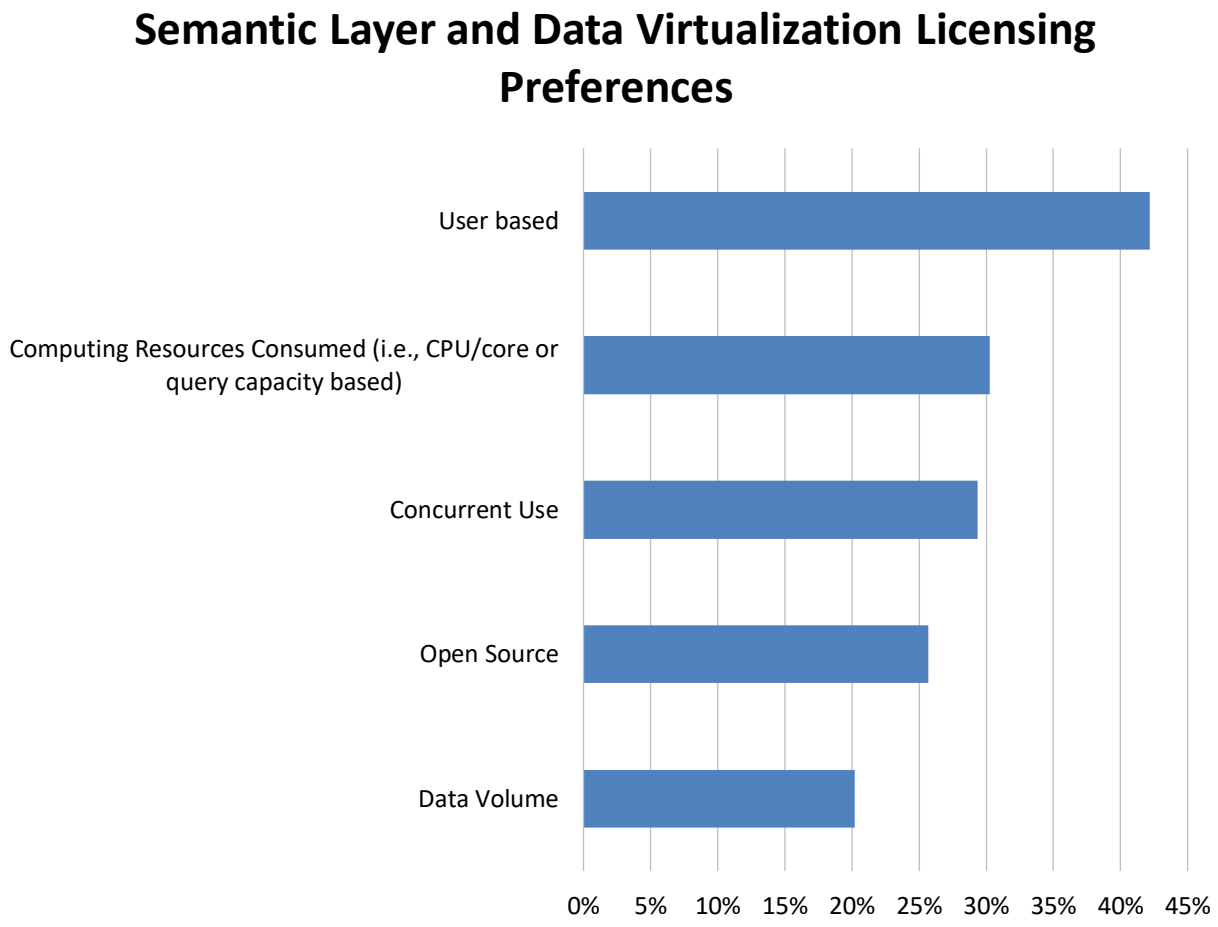


Figure 55 -- Semantic Layer and Data Virtualization Licensing Preferences

Preferences for licensing of semantic layer and data virtualization capabilities vary by geographic region (fig. 56). Asia Pacific organizations are open to a more diverse range of licensing approaches, with 60% indicating preference for user-based licensing, 42% preferring concurrent use, 37% preferring open source and 32% preferring data volume approaches. In contrast, EMEA organizations lean strongly toward user-based licensing, with 50% of organizations stating it as a preference, and less than 30% indicating a preference for any other options. North American organizations reflect a more balanced view across all options, with 38% preferring user-based licensing, and all other options in the 20%-35% range. Latin America is the only region expressing a strong preference for open source, with a majority 57% of organizations in that region selecting this option.

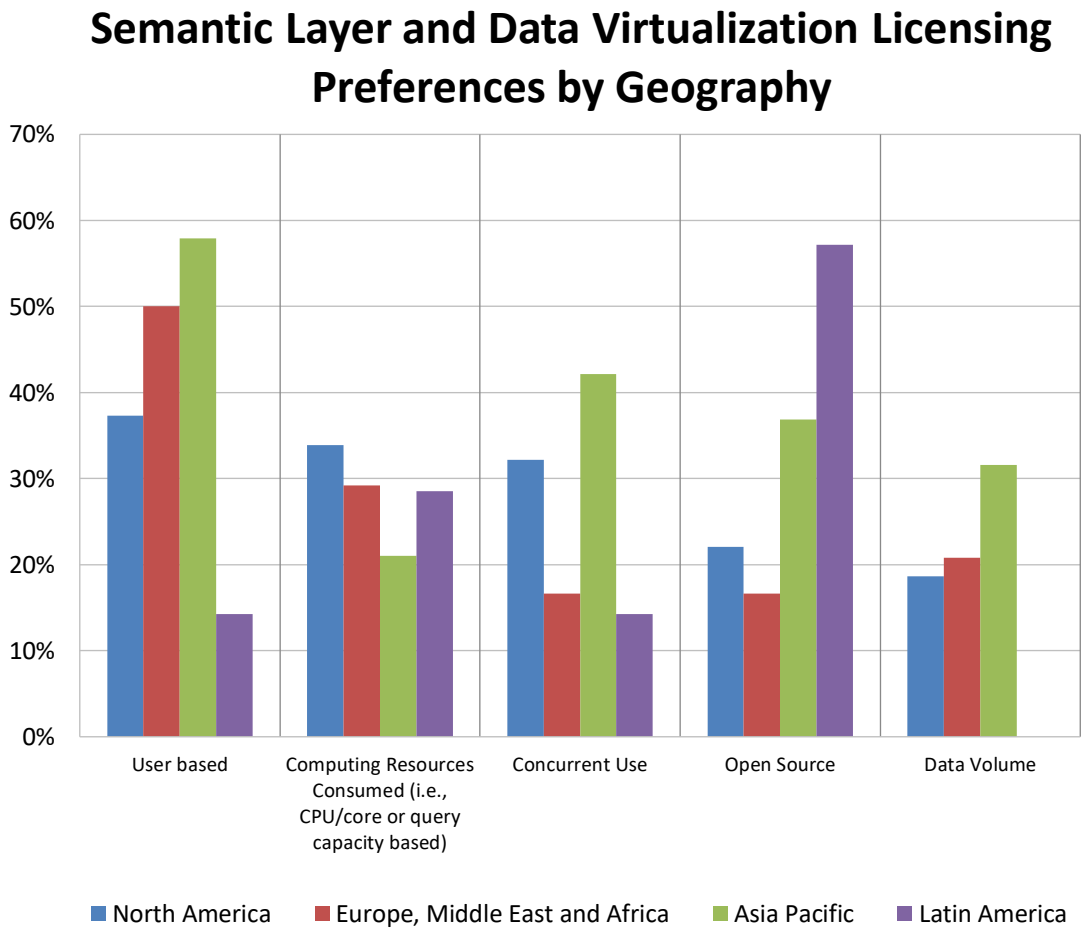


Figure 56 -- Semantic Layer and Data Virtualization Licensing Preferences by Geography

Survey data shows distinct industry preferences for licensing semantic layer and data virtualization capabilities. Sixty-seven percent of consumer services organizations indicate a preference for user-based licensing, the most popular option in that sector (fig. 57). Manufacturing splits its preference between user-based licensing and computing resources consumed, at 53% and 40%, respectively. Seventy-one percent of healthcare organizations state a preference for concurrent use licensing, far above all other options. While 50% of financial services organizations indicate a preference for user-based licensing, another 43% also prefer open-source approaches.

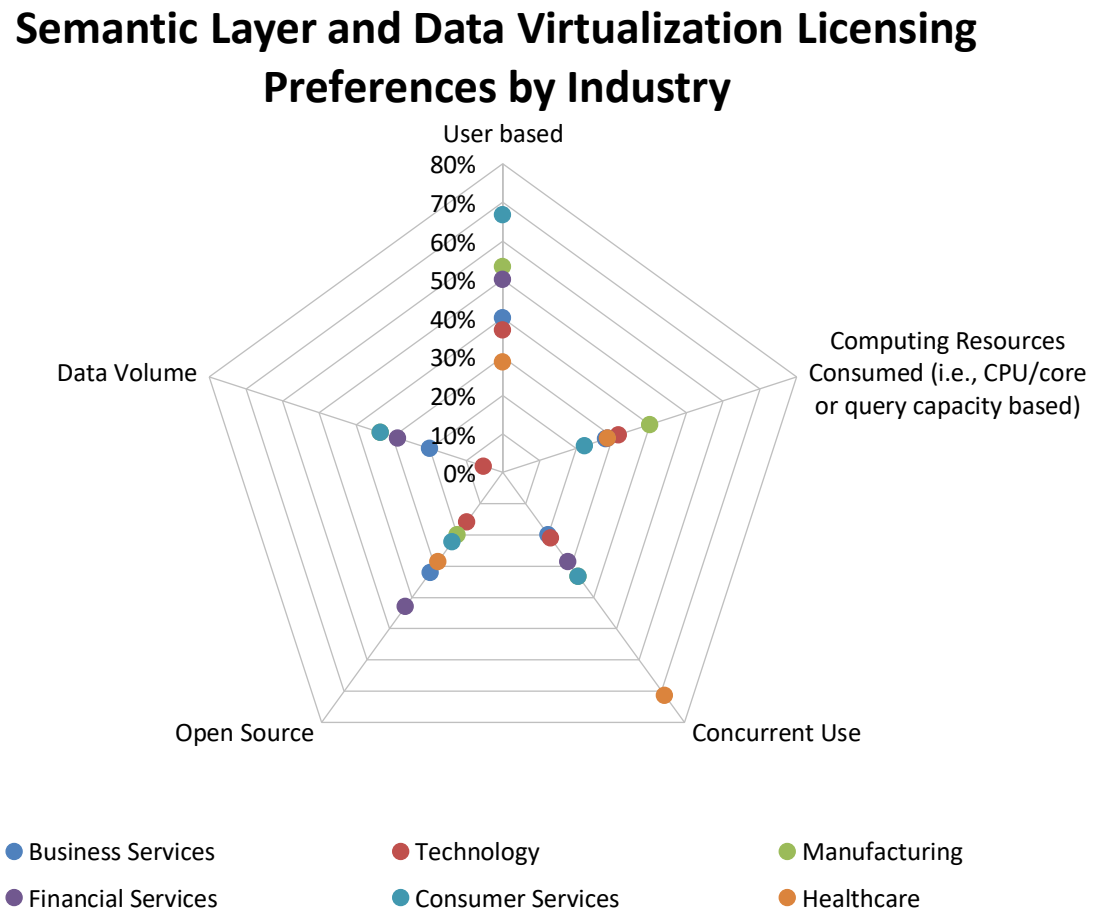


Figure 57 -- Semantic Layer and Data Virtualization Licensing Preferences by Industry

Organizations of different sizes show an affinity for certain semantic layer and data virtualization licensing approaches (fig. 58). Generally speaking, smaller organizations tend to express a greater preference for user-based licensing, while larger organizations prefer licensing approaches not bound to specific numbers of people. This makes sense because cost challenges arise from scaling user-oriented licensing models to large numbers of people. Forty-one percent of the smallest organizations (1-100 employees) indicate a preference for user-based licensing, as do 53% of organizations with 101-1,000 employees; the latter represent the strongest and only majority preference in the sample. Very large organizations (more than 10,000 employees) primarily prefer computing resource and concurrent use licensing models, at a 36% rate for each. Organizations within the range of 1,001-10,000 employees show a slight preference for user-based licensing, at 44%, over computing resources at 34%.

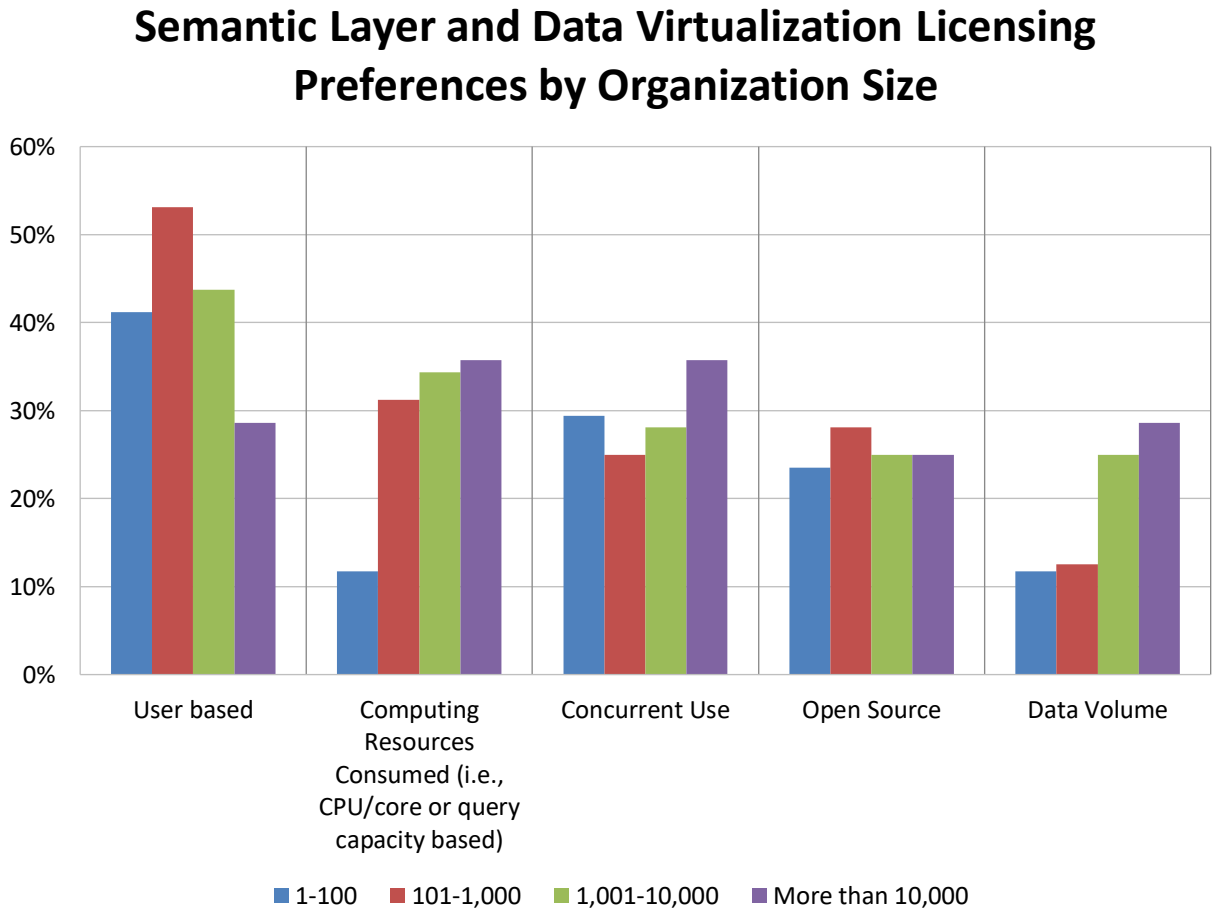


Figure 58 -- Semantic Layer and Data Virtualization Licensing Preferences by Organization Size

Levels of BI success and diversity of licensing preferences for semantic layer and data virtualization capabilities show a slight correlation. Organizations indicating they are extremely successful with BI express a preference at two levels: 55% of these organizations prefer user-based or concurrent use licensing approaches (fig. 59). At a lower level, 36% of this segment indicates a preference for computing resource consumption licensing models and open source. Organizations at lower levels of success—those considering their BI efforts to be very successful or moderately successful—clearly indicate a preference for user-based licensing (43%-44%) over other licensing approaches.

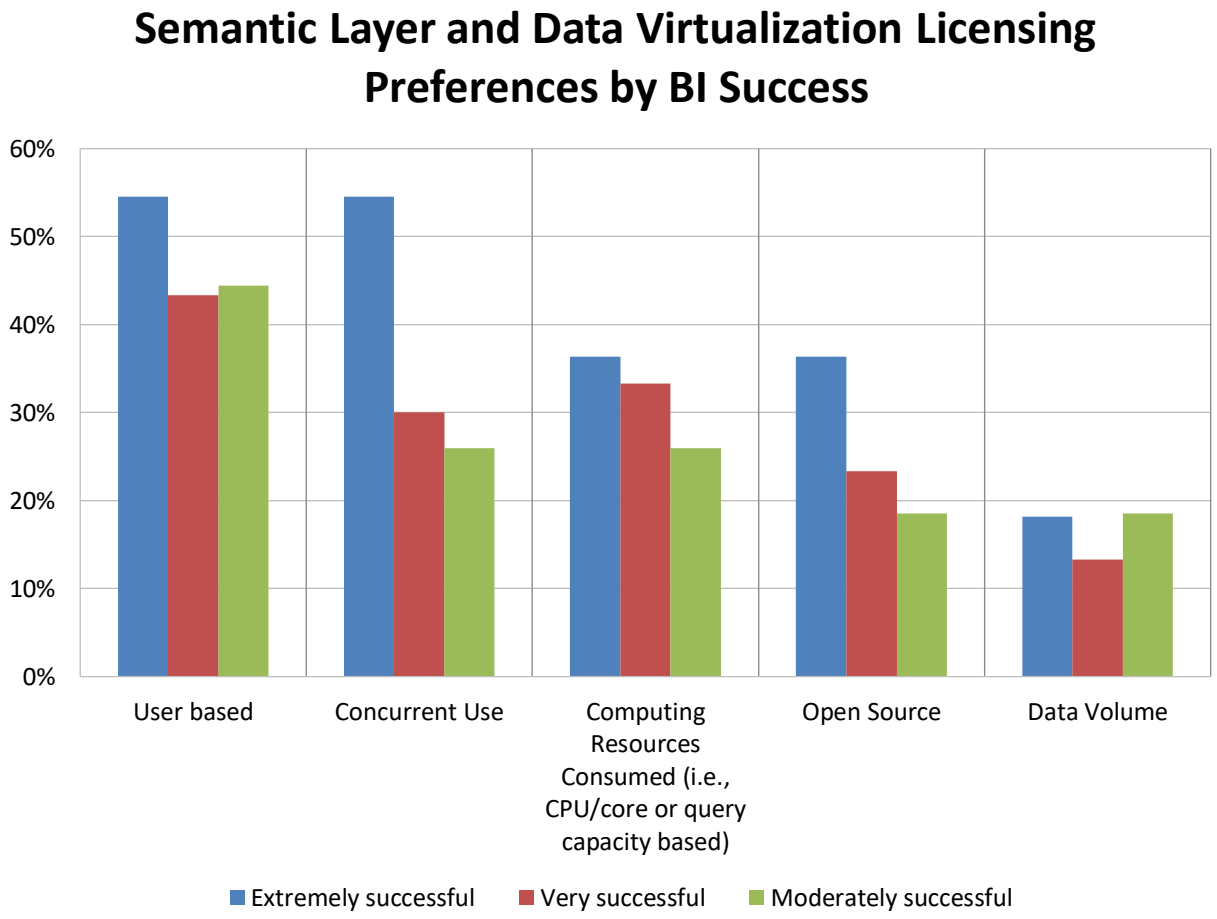


Figure 59 -- Semantic Layer and Data Virtualization Licensing Preferences by BI Success

Sourcing of Semantic Layer and Data Virtualization Capabilities

As with other ADI components, like data engineering, a majority of organizations indicate a preference for best-of-breed approaches to sourcing capabilities for semantic layer and data virtualization (fig. 60). Fifty-nine percent of respondents prefer this approach, far above all other options. Forty percent of organizations show a preference for vendors that partner and integrate with their ADI vendor of choice, making this the second most popular approach. Least-preferred options are vendors from the primary ADI provider's marketplace and a single-platform approach using solely the primary ADI providers, at 32% frequency for each.

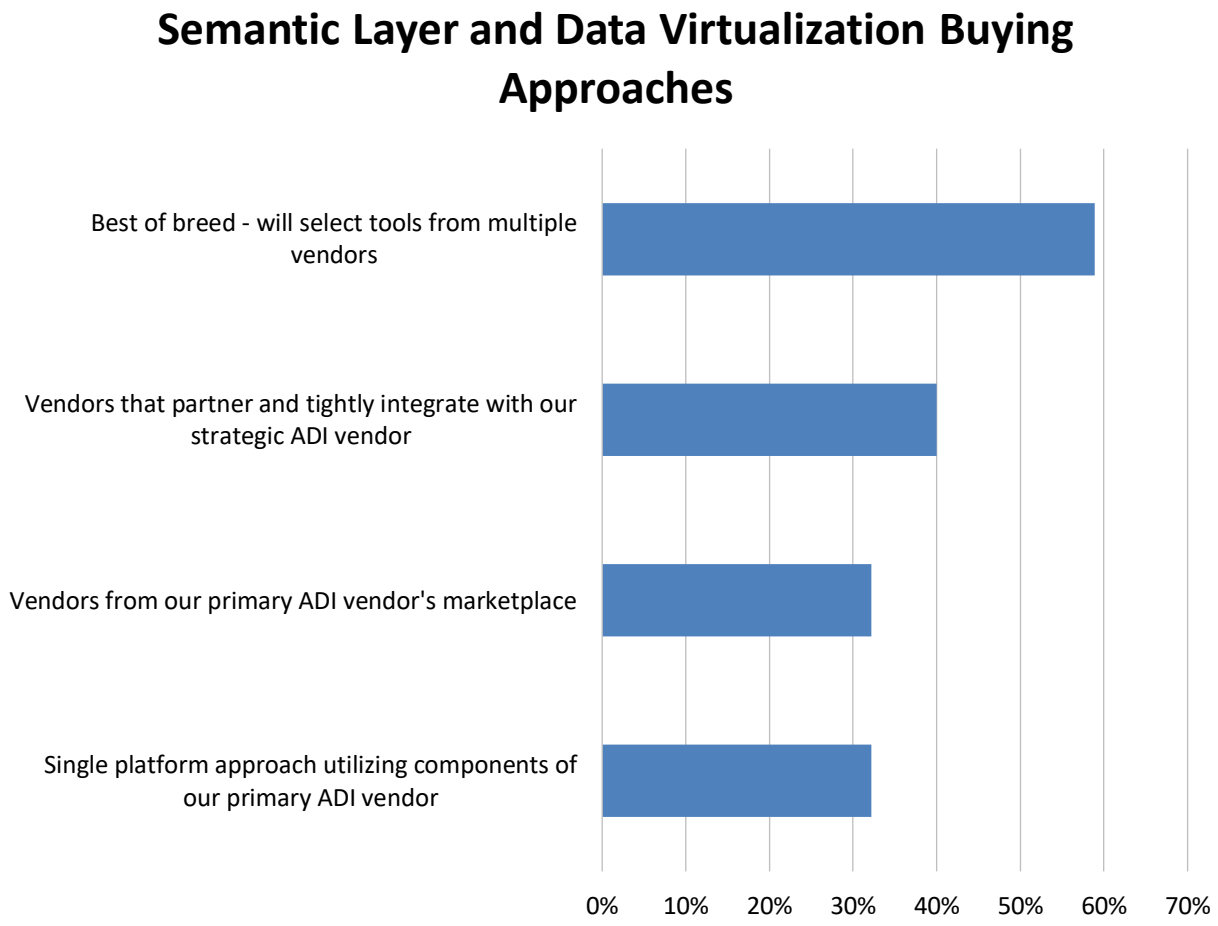


Figure 60 -- Semantic Layer and Data Virtualization Buying Approaches

Although most regions align with the overall industry preference for best-of-breed sourcing approaches, preferences still vary by geographic region. North American and Asia Pacific organizations most clearly prefer best-of-breed, with strong majorities of 61% and 69% respectively identifying this approach (fig. 61). EMEA organizations also prefer this approach but with only 50% frequency. Asian organizations also show the greatest openness to all sourcing approaches, with 50% indicating they prefer vendors that partner and integrate with their ADI provider of choice, and 56% preferring a single-platform approach or vendors from their primary ADI provider's marketplace. In contrast, North American and Latin American organizations show a strong preference for a single approach above all others—35% or less of North American organizations indicate a preference for approaches other than best-of-breed, and 40% or less of Latin American organizations identify an approach other than partnership/integration with their strategic ADI vendor.

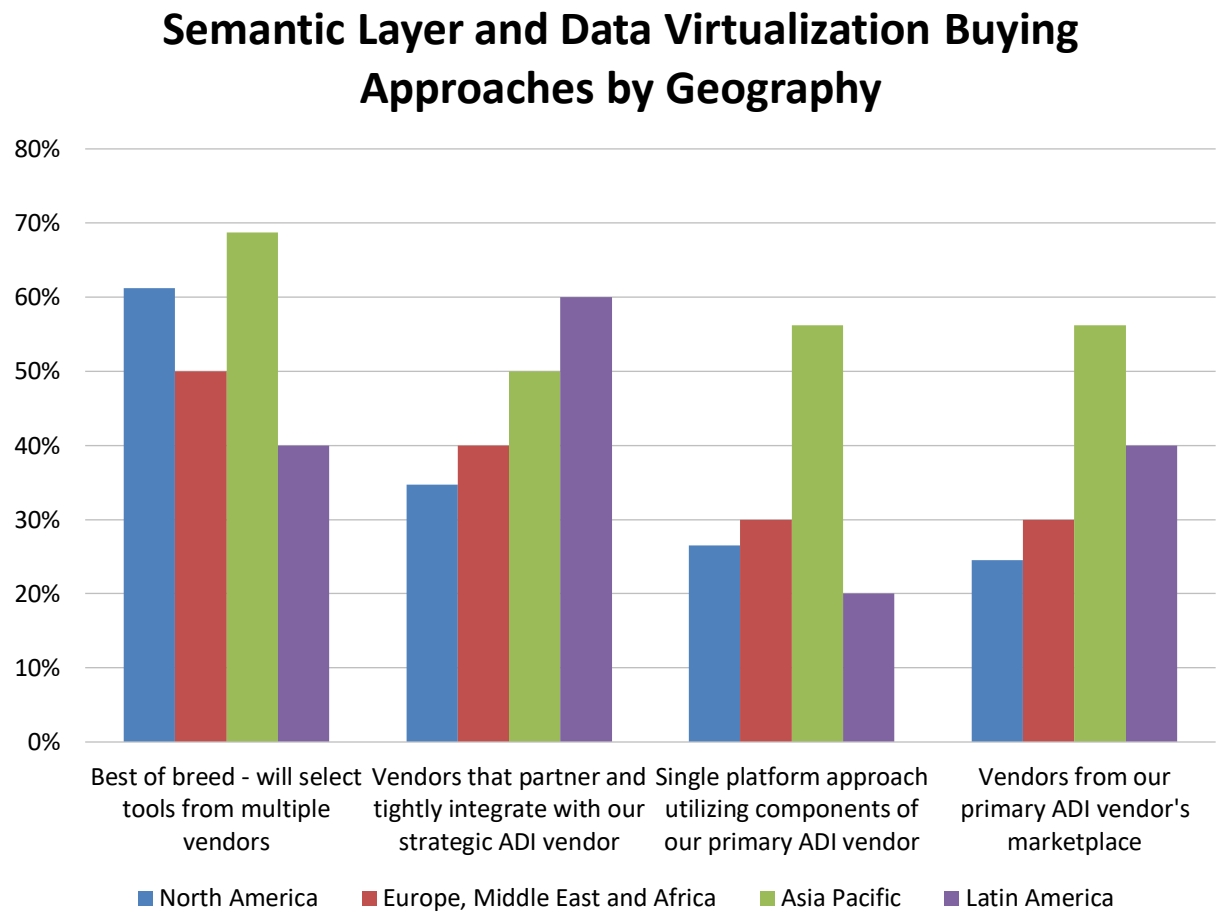


Figure 61 -- Semantic Layer and Data Virtualization Buying Approaches by Geography

Most industry sectors reflect overall market preferences regarding buying approaches for semantic layer and data virtualization capabilities. Respondents in all industries are more likely to prefer best-of-breed approaches over other options, with the exception of technology organizations, of which 67% prefer a single-platform approach from their primary ADI vendor and only 44% prefer best-of-breed (fig. 62). Business services shows the strongest preference for best-of-breed, with 89% of that sector citing that approach, compared with only 33% for all other approaches. Financial services organizations favor two approaches in equal measure, with 64% highlighting best-of-breed and 57% indicating vendors that partner and integrate with their ADI vendor of choice. A similar pattern is apparent for manufacturing organizations, of which 58% prefer best-of-breed and 50% prefer a single-platform ADI vendor approach.

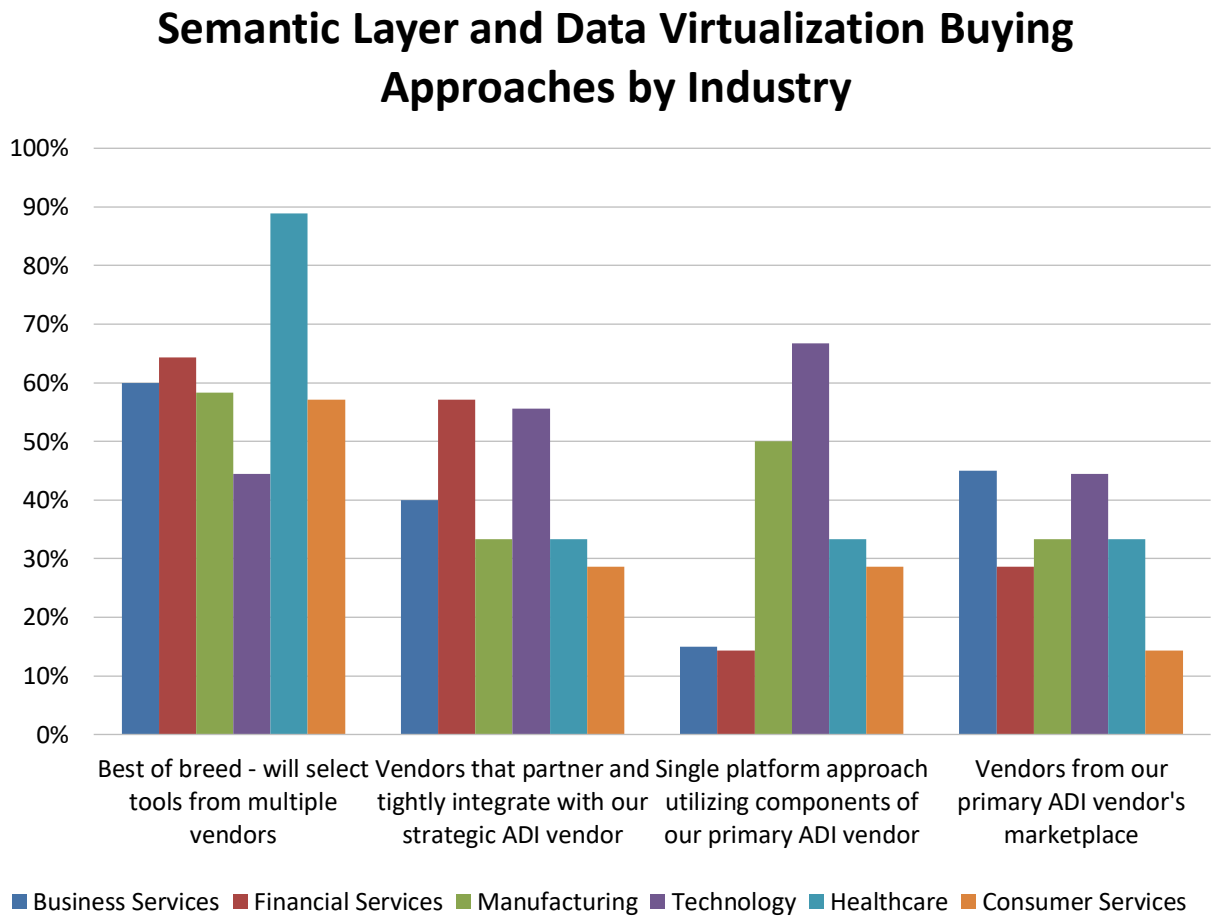


Figure 62 -- Semantic Layer and Data Virtualization Buying Approaches by Industry

Buying preferences for semantic layer and data virtualization capabilities differ significantly by business function. IT, the business intelligence and analytics competency center and finance organizations prefer best-of-breed over all other approaches at frequencies of 55%-80% (fig. 63). Seventy-one percent of data science functions, however, prefer a single-platform ADI vendor approach, far above all other options. The BICC also shows a unique pattern, reflecting openness to all buying approaches at rates exceeding 33%—the only function to do so. The IT function shows similar preferences, but deemphasizes the single-platform ADI vendor approach, at just 23%.

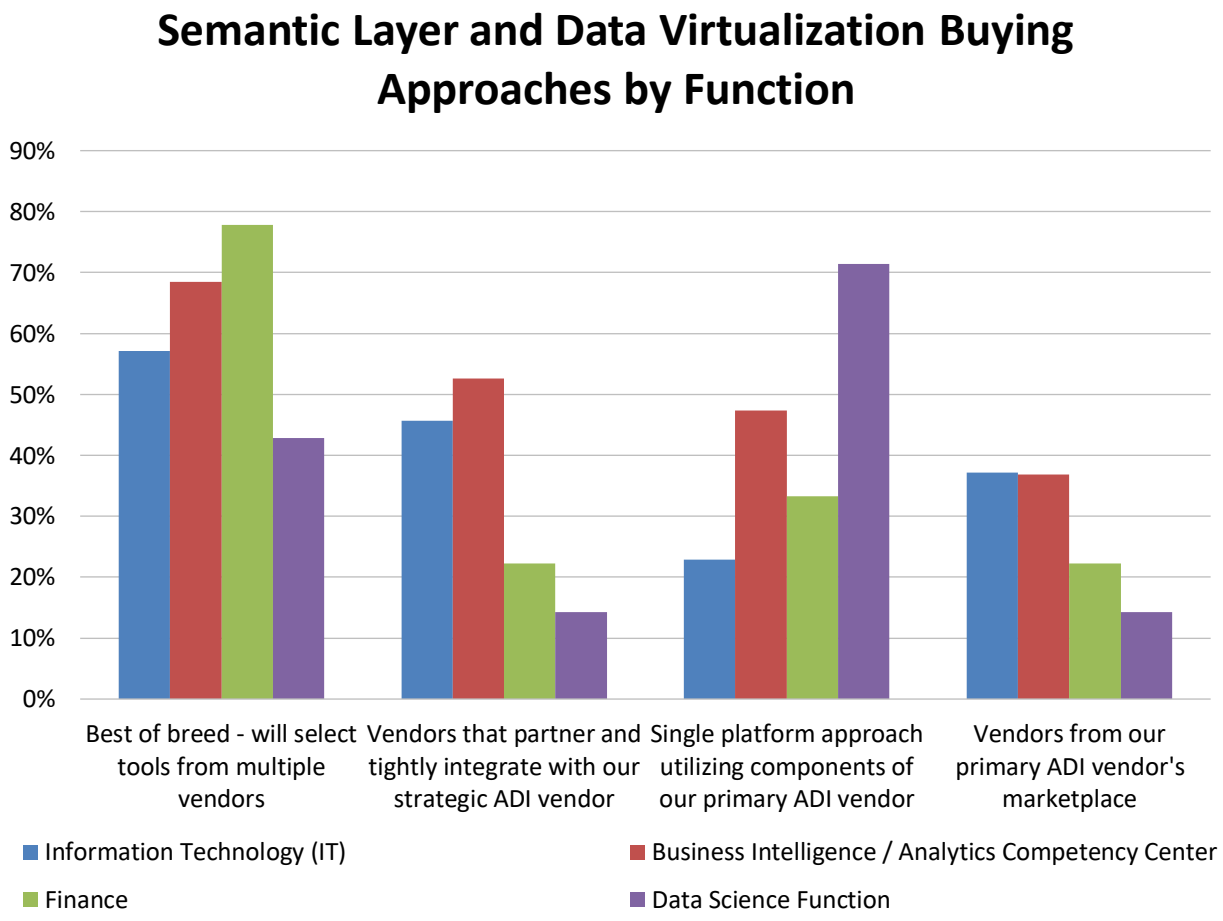


Figure 63 -- Semantic Layer and Data Virtualization Buying Approaches by Function

Organization size reveals two distinct classes of preferences. The smallest (1-100 employees) and largest (more than 10,000 employees) organizations show similar tendencies in their buying approaches, with over 65% of these organizations preferring best-of-breed, and less than 25% preferring any other approach (fig. 64). Small (101-1,000 employees) and large (1,001-10,000 employees) organizations in contrast reflect a more balanced acceptance of all buying approaches, with 35%-55% of these organizations indicating a preference for each approach.

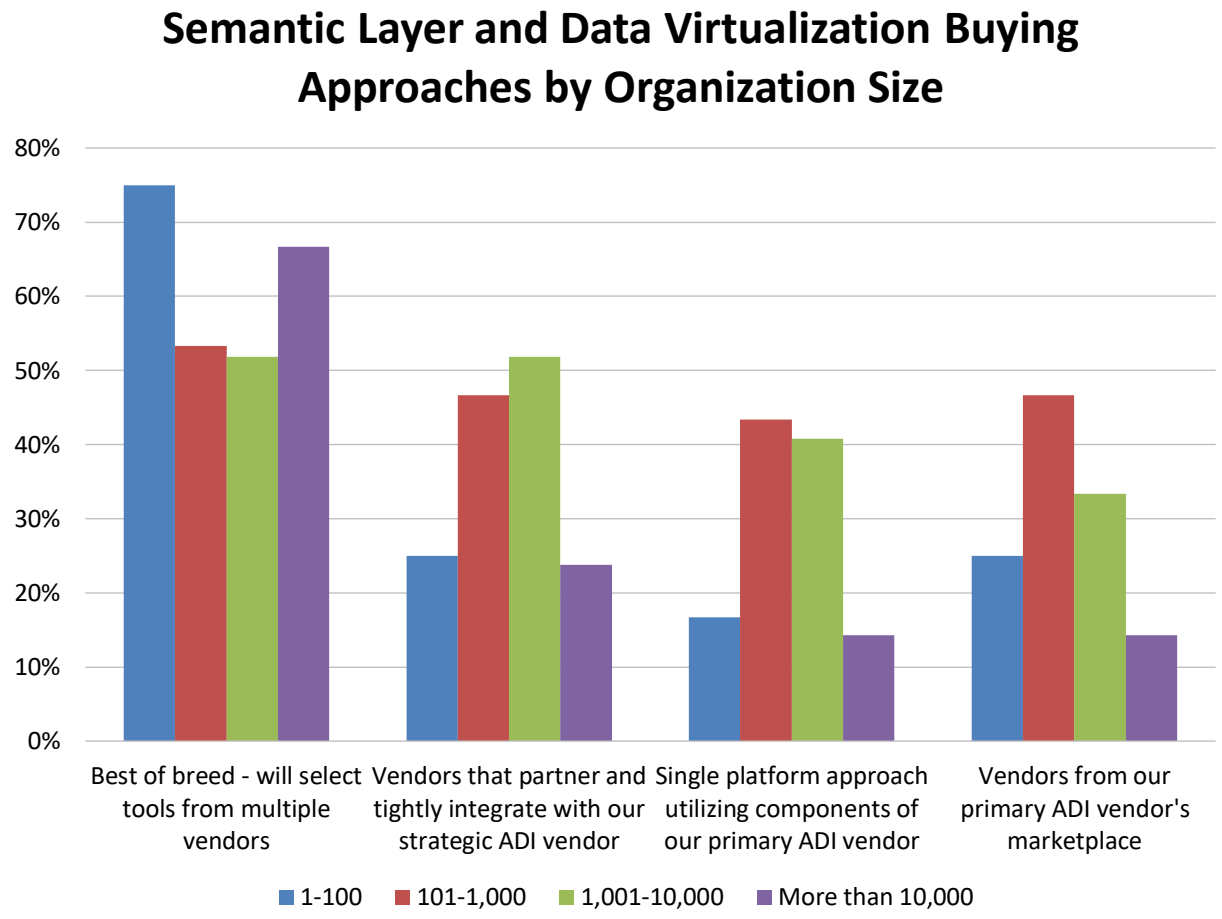


Figure 64 -- Semantic Layer and Data Virtualization Buying Approaches by Organization Size

Approaches to sourcing semantic layer and data virtualization capabilities vary according to the organization's degree of success in BI initiatives (fig. 65). Seventy percent of extremely successful organizations prefer a best-of-breed approach, but 50% also indicate openness to ADI vendor single-platform approaches. Very successful organizations show an equal preference for best-of-breed and partners of their strategic ADI vendor, with both options cited by 54%. Those organizations that are only moderately successful with BI show a clear preference for best-of-breed, with 58% highlighting this approach, while 40% also indicate a preference for vendors that partner and integrate with their strategic ADI provider.

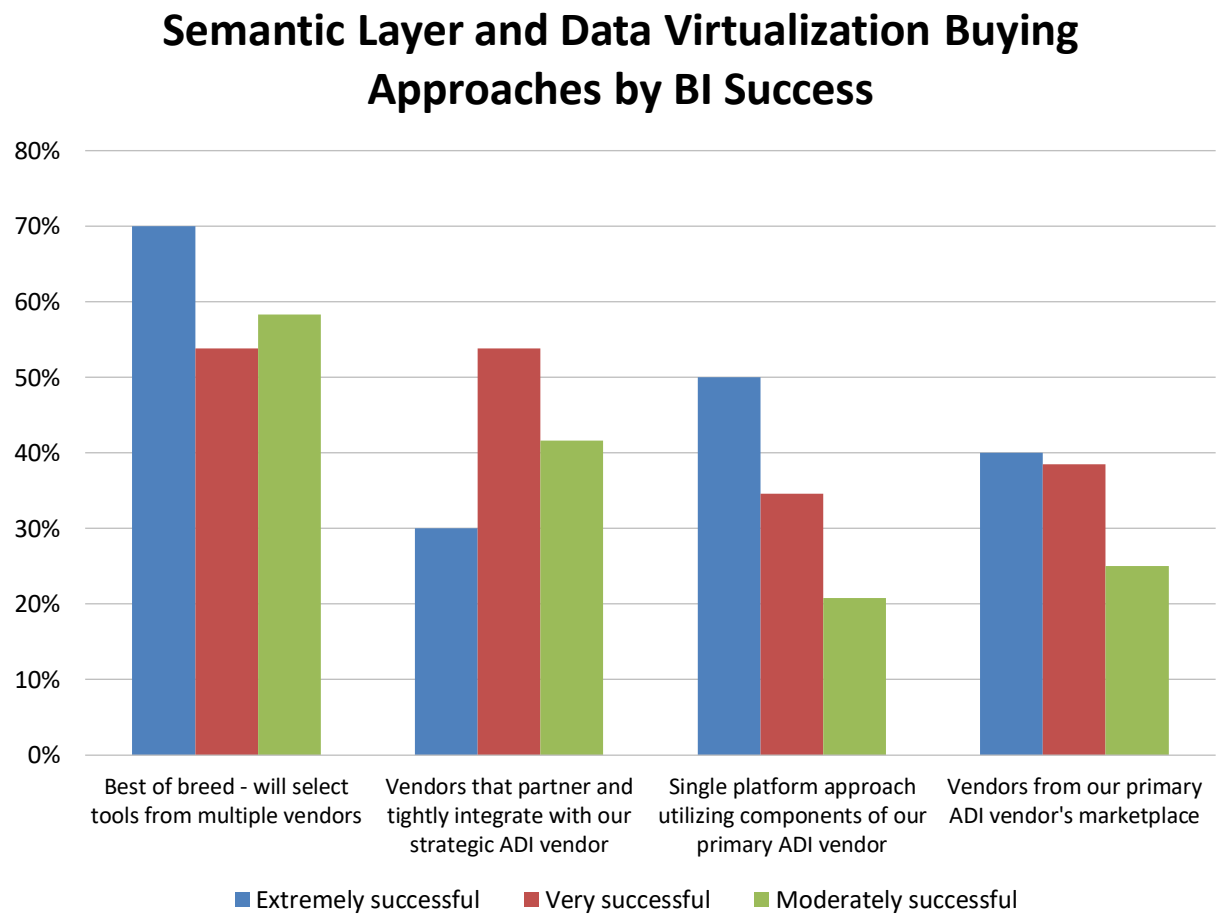


Figure 65 -- Semantic Layer and Data Virtualization Buying Approaches by BI Success

Organizations at different AI maturity levels show dramatically different preferences in buying approaches for semantic layer and data virtualization capabilities (fig. 66). Sixty-seven percent of those at an intermediate level of AI maturity prefer best-of-breed, far above all other approaches (each at 33% or less). Organizations at an early stage of emerging AI maturity more often prefer an approach involving vendors that partner and integrate with their strategic ADI provider. Fifty percent of these respondents indicate a preference for that approach, with 38% also showing a preference for both best-of-breed and primary ADI vendor marketplace approaches.

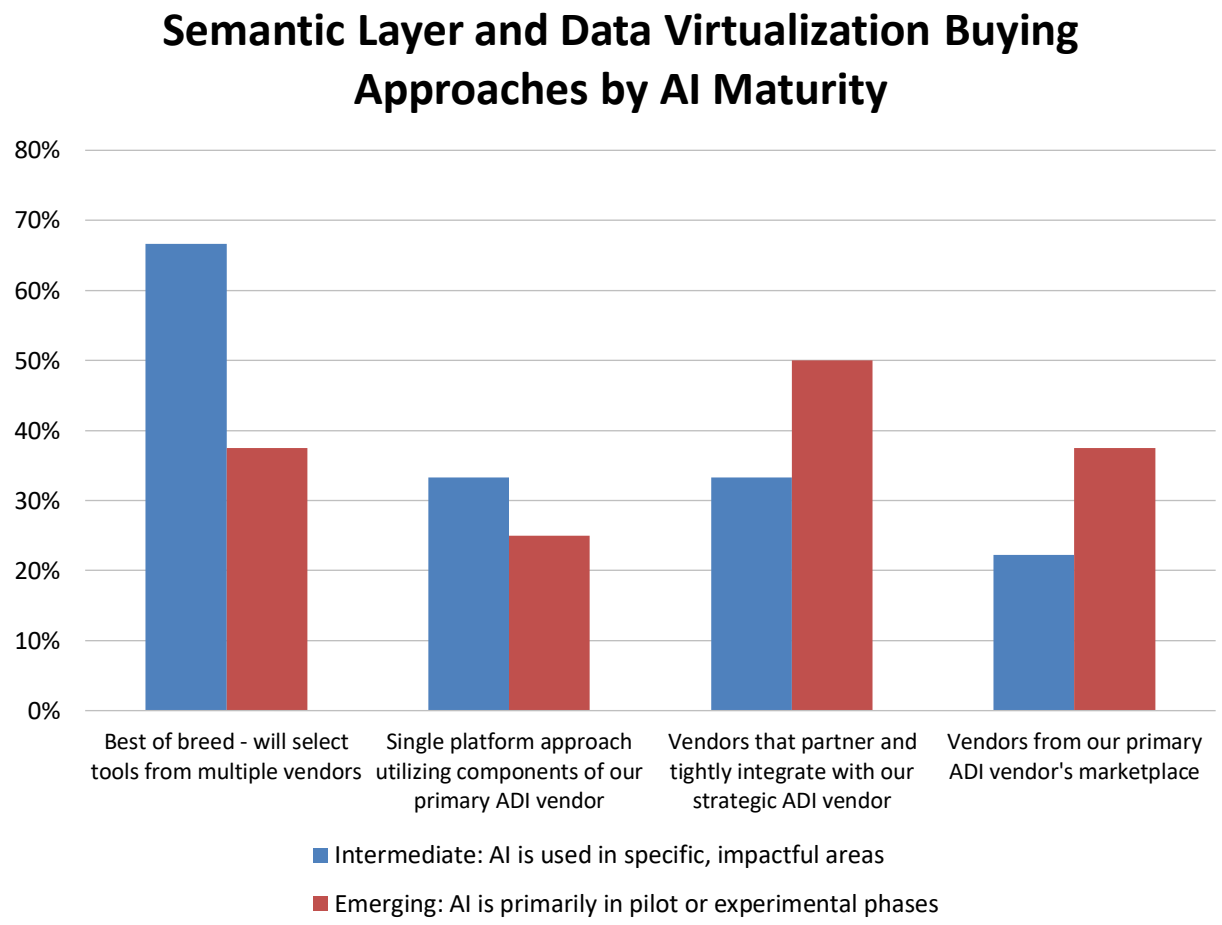


Figure 66 -- Semantic Layer and Data Virtualization Buying Approaches by AI Maturity

Industry and Vendor Analysis

Industry and Vendor Analysis

The ADI market ecosystem is constantly evolving, with an increasing number of vendors offering an ever-wider range of ADI-relevant technology components in their product portfolios. Semantic layer and data virtualization functionality is growing more prevalent in the market as large providers of very broad capabilities bundle it with other ADI components. And specialist vendors are entering the market, focusing on marketing and positioning semantic layer and data virtualization and offering pre-packaged solutions tailored to specific use cases.

Industry Support for Semantic Layer and Data Virtualization

Across the range of available ADI-components, semantic layer and data virtualization capabilities are among the most readily available (fig. 67). Seventy-eight percent of vendors claim these capabilities are built into their core platform, ranking second to only data security and privacy among all ADI components. Another 14% state that semantic layer and data virtualization functionality is available to their customers via integration with other offerings. Only 5% indicate that these capabilities are not available currently in any form and are planned for future delivery.

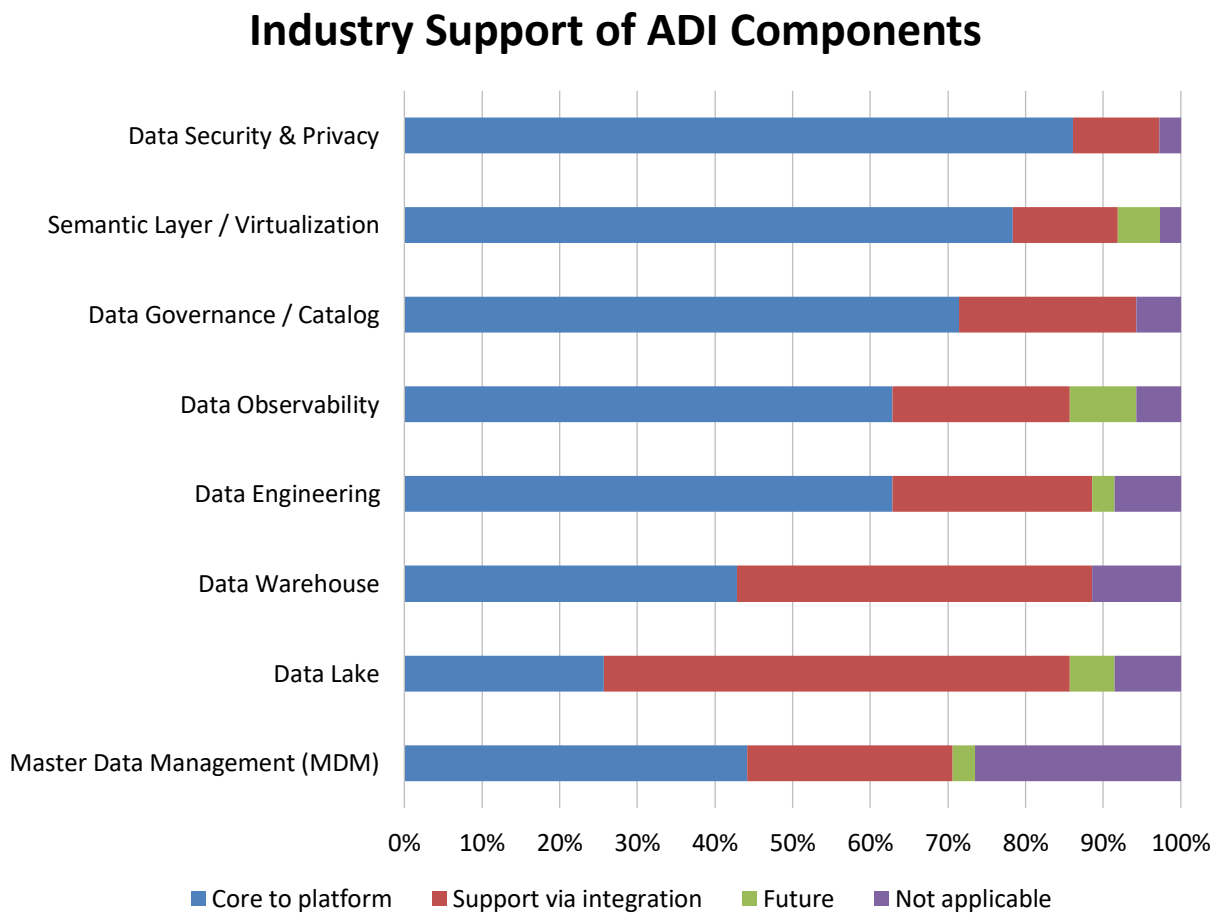


Figure 67 -- Industry Support of ADI Components

Industry Support for Data Integration and Access Management

Several data integration and access management approaches are available to support semantic layer and data virtualization (fig. 68). A strong majority of vendors currently support granular control over permissions; availability of APIs and connectors; ability to integrate with various data sources; mapping, modeling and semantic alignment; and bulk/batch data flow—over 80% of vendors state they offer these integration and access management capabilities today. The remaining styles—including real-time and event streaming, support for DAX connectivity, and message-oriented data flow—are currently supported by 62% or fewer of vendors, but should become available from over 70% of providers within 24 months.

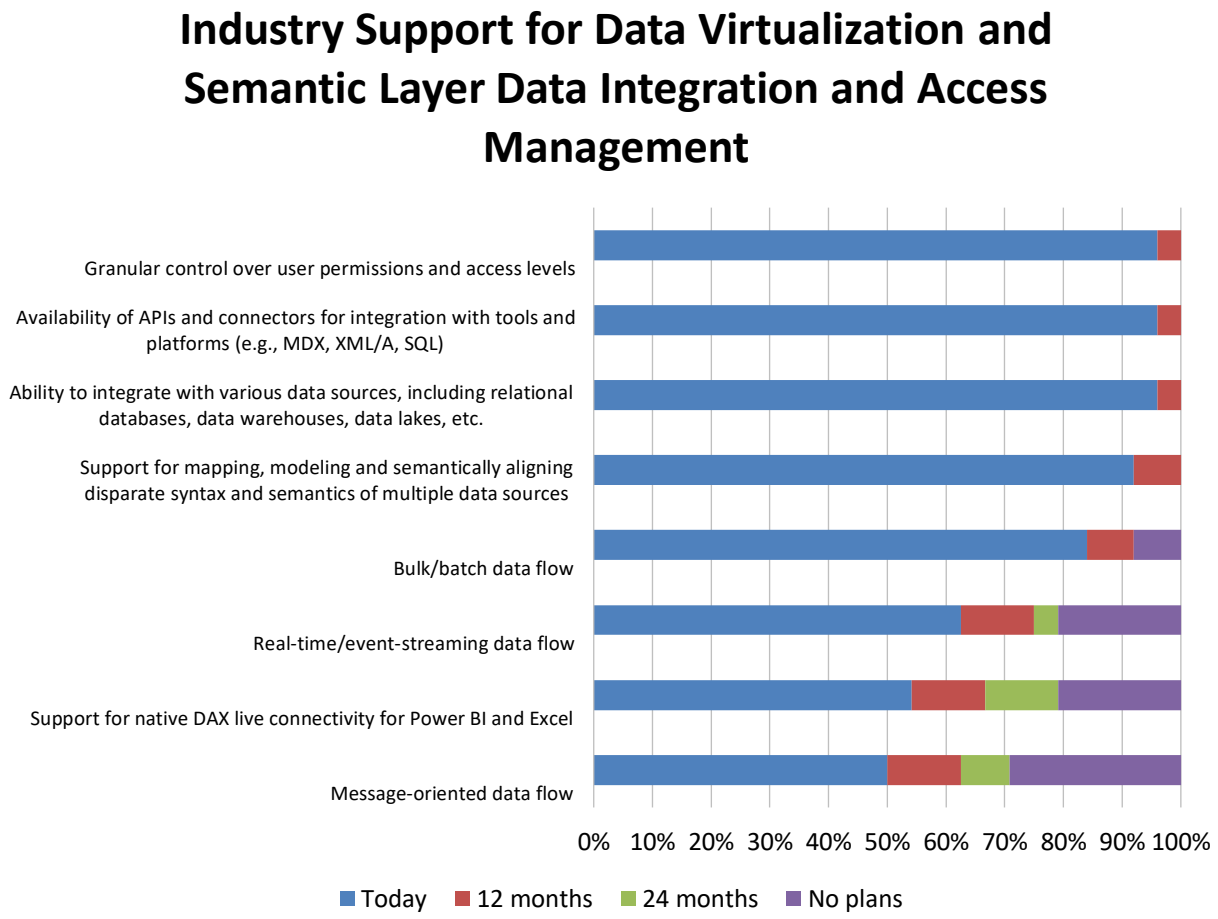


Figure 68 -- Industry Support for Data Virtualization and Semantic Layer Data Integration and Access Management

Industry Support for Scalability and Performance Capabilities

Semantic layer and data virtualization deployments often struggle with scalability and performance when accessing, integrating and delivering data from diverse and distributed sources. To bridge this gap, ADI vendors provide capabilities designed for high-speed, scalable access (fig. 69). Ninety-six percent of responding vendors state they currently provide data persistence and caching capabilities. Seventy-five percent support pre-fetch and pre-transform today, with another 4% anticipated to add these capabilities within 12 months. Seventy-five percent also offer automated data placement today, with 4% planning to add this over the next 24 months. Distributed query optimization, which is crucial to performance of data virtualization deployments, is offered by 68% of vendors today, and another 8% will support it within 12 months.

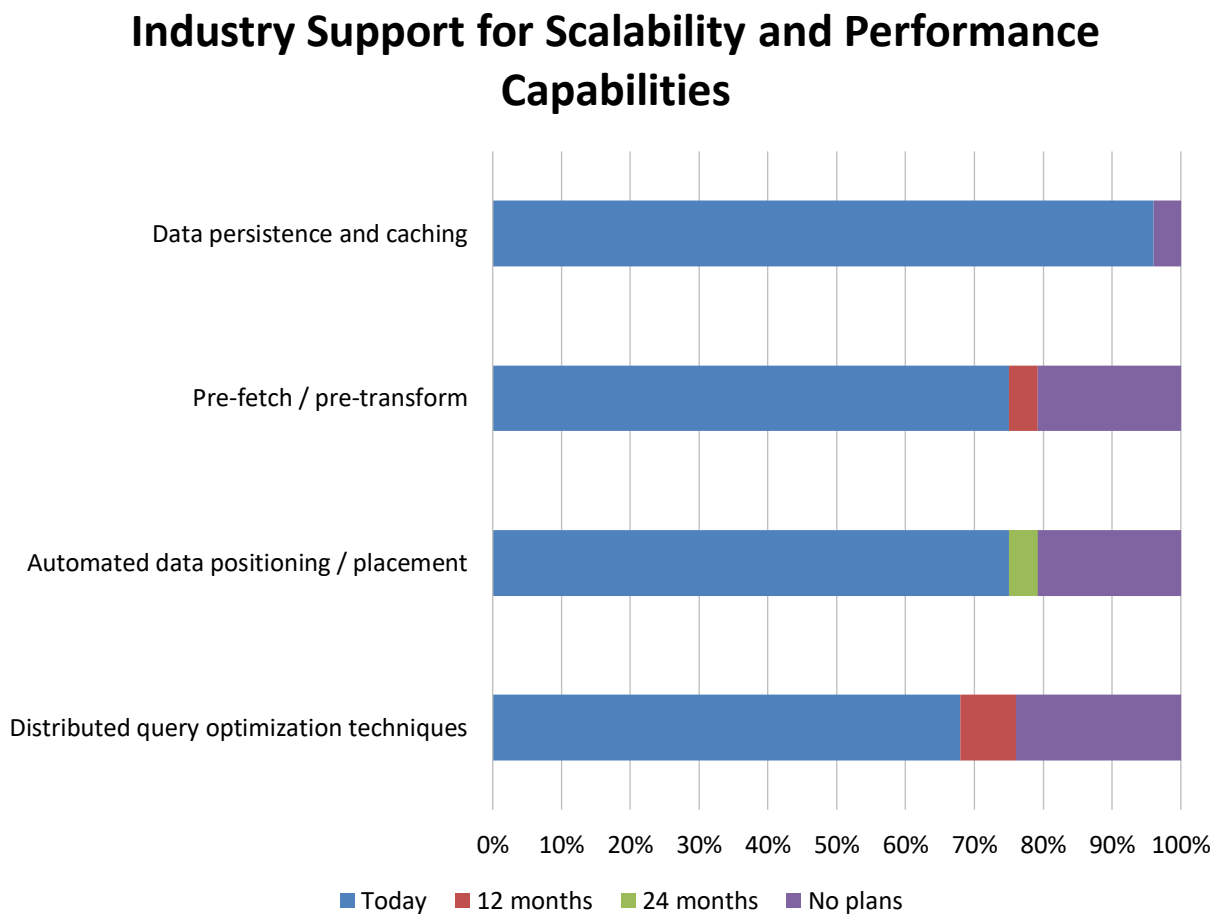


Figure 69 -- Industry Support for Scalability and Performance Capabilities

Industry Support for Modeling and Transformation Features

Data modeling and transformation capabilities are critical to delivery of semantic layer and data virtualization, as their core value lies in semantically aligning and representing disparate data. ADI vendors' support for relevant features is diverse but inconsistent (fig. 70). Ninety-two percent support custom and dynamic aggregations today, the most prevalent feature in this category. Eighty-four percent also support the ability to create and manage calculated measures and multidimensional data models today. The remaining features receive more sporadic report, with 68% offering a co-pilot feature to guide the creation of semantic models and 64% supporting AI-driven model development. These represent the two greatest vendor investment areas, with another 24% of vendors indicating they will add support for these within 12 months. Slowly changing dimensions and sparse data management garner the lowest levels of current and future support, likely aligning with lower demand for big-data-specific models and dimensional models as they are supplanted by more contemporary approaches.

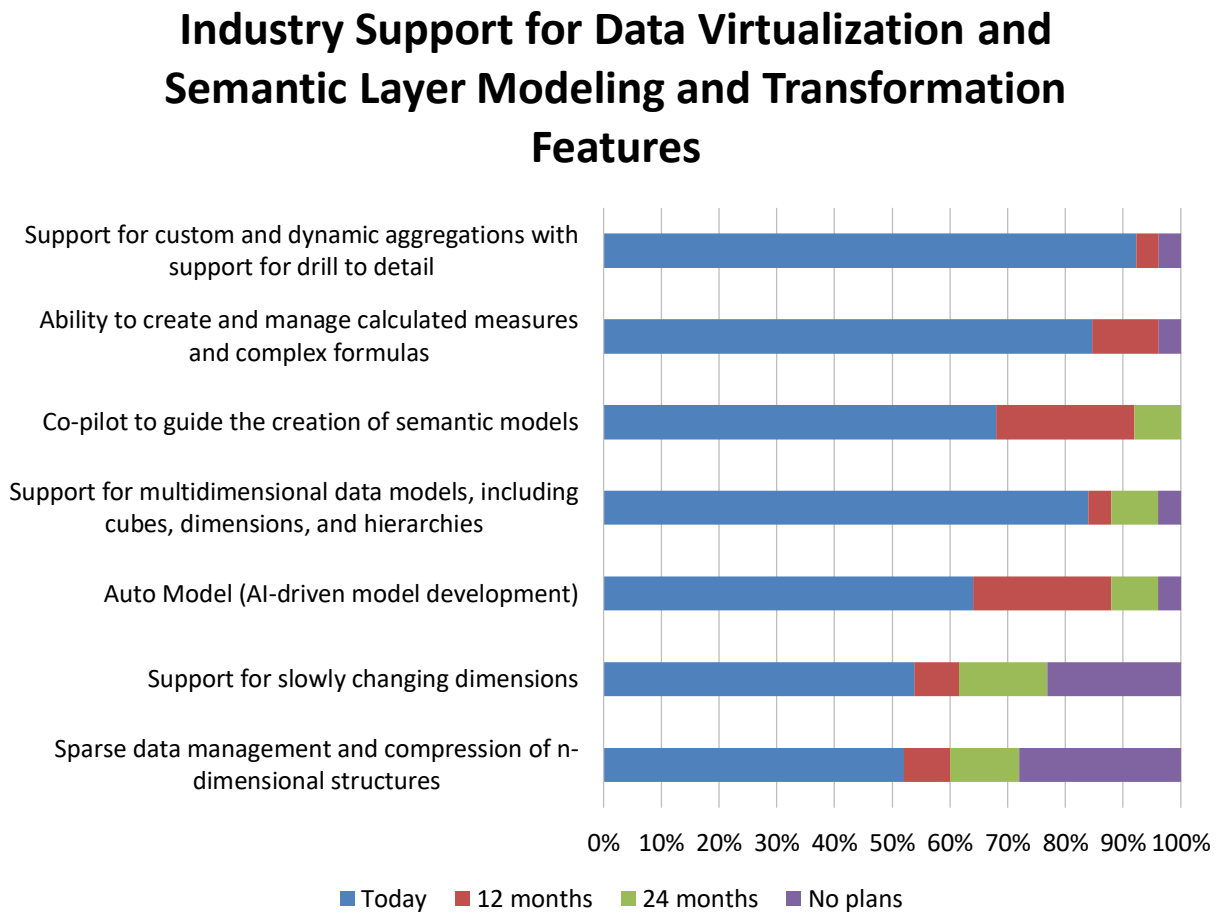


Figure 70 -- Industry Support for Data Virtualization and Semantic Layer Modeling and Transformation Features

Industry Support for Performance Optimization and Lifecycle Features

As deployments become more complex and demand a stronger performance within semantic layer and data virtualization environments, implementation success increasingly depends on vendor support for performance optimization and lifecycle features. Providers address these demands through a range of features (fig. 71). Most prevalent is materialized views and caching support, offered today by 88% of vendors. This is followed closely by query retry/failover and real-time data updates, supported today by 79% and 80% of vendors respectively. Approximately 70% of vendors provide support today for query performance monitoring, end-to-end testing, automatic query optimization and concurrency scaling. Tools for monitoring query performance represent an important near-term investment, with 19% of vendors indicating they will add this feature within 12 months. The remaining features are currently provided by 65% or less of vendors.

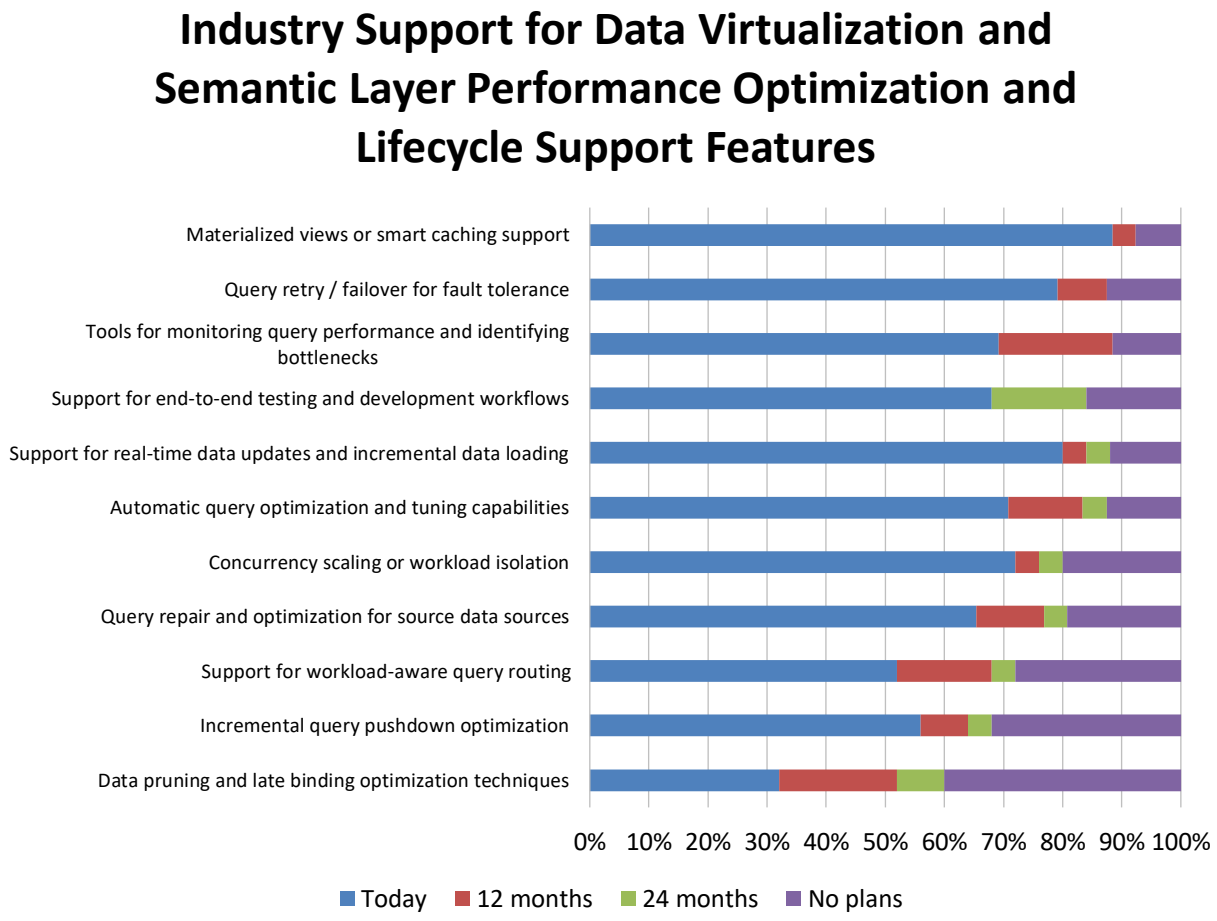


Figure 71 -- Industry Support for Data Virtualization and Semantic Layer Performance Optimization and Lifecycle Support Features

Industry Support for Governance and Administration Features

Because semantic layer and data virtualization deployments often involve multiple diverse and distributed platforms and data sources, they require strong governance and administration to ensure controlled and high-quality data delivery. Vendors mainly provide this support through audit history, version control of semantic models, and built-in scheduling of model refreshes, each offered today by 88%, 80% and 80% of vendors respectively (fig. 72). Each of these features is expected to exceed 95% in vendor support within 12 months. Business glossary mapping is well supported, with 73% of vendors offering it today and another 15% planning to add this feature within 12 months. Simulation and validation tools, multilingual semantic layer configurations and automated regression testing all enjoy more limited support, with less than 60% of vendors offering these features today.

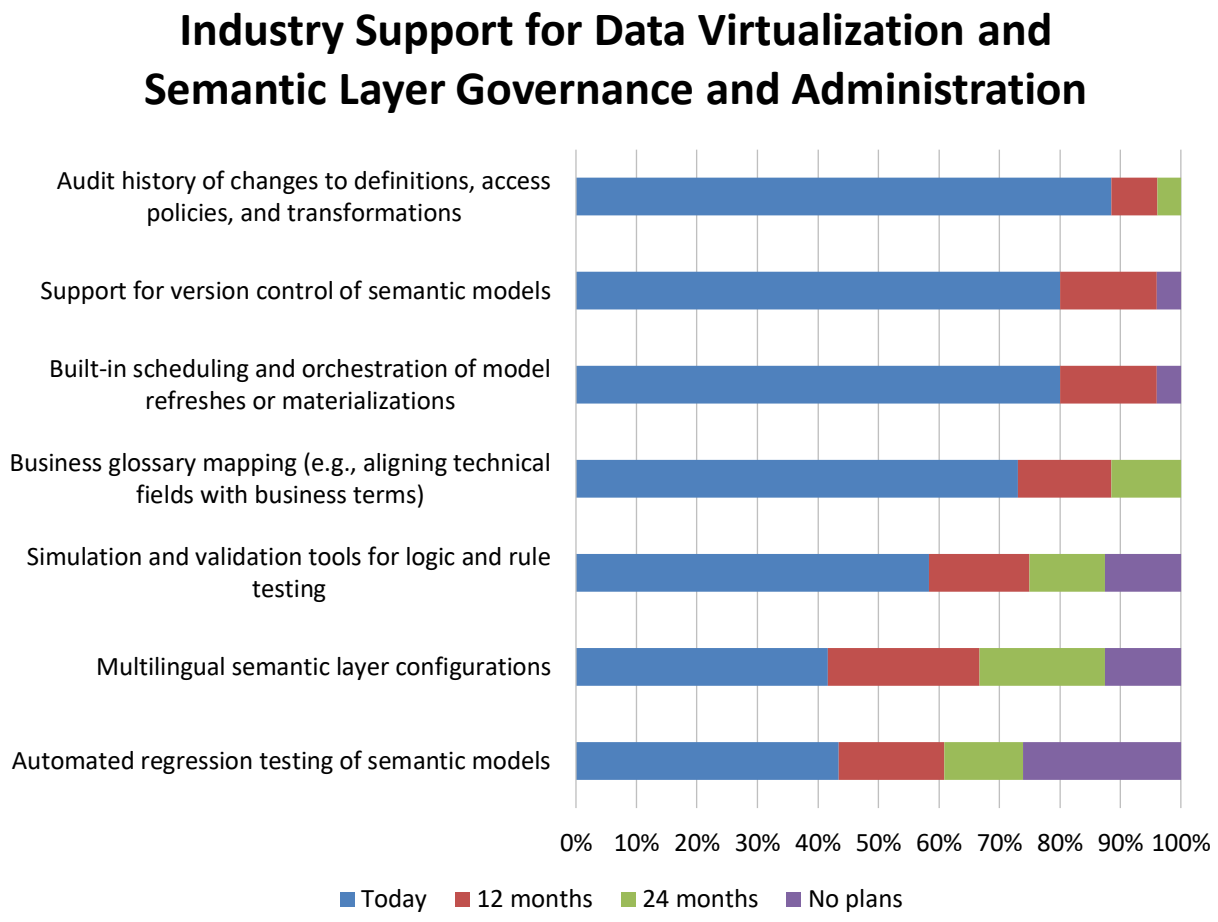


Figure 72 -- Industry Support for Data Virtualization and Semantic Layer Governance and Administration

Semantic Layer and Data Virtualization User Experience

Vendors tailor the user experience to drive adoption of their semantic layer and data virtualization capabilities within broader ADI offerings (fig. 73). Eighty percent offer semantic layer and data virtualization as a fully unified interface with shared metadata and controls. This is the predominant approach—only 15% of vendors deliver semantic layer and data virtualization via partial integration with their broader ADI offering, including some shared components and workflows. And only 4% of vendors do so via integrated APIs and configuration.

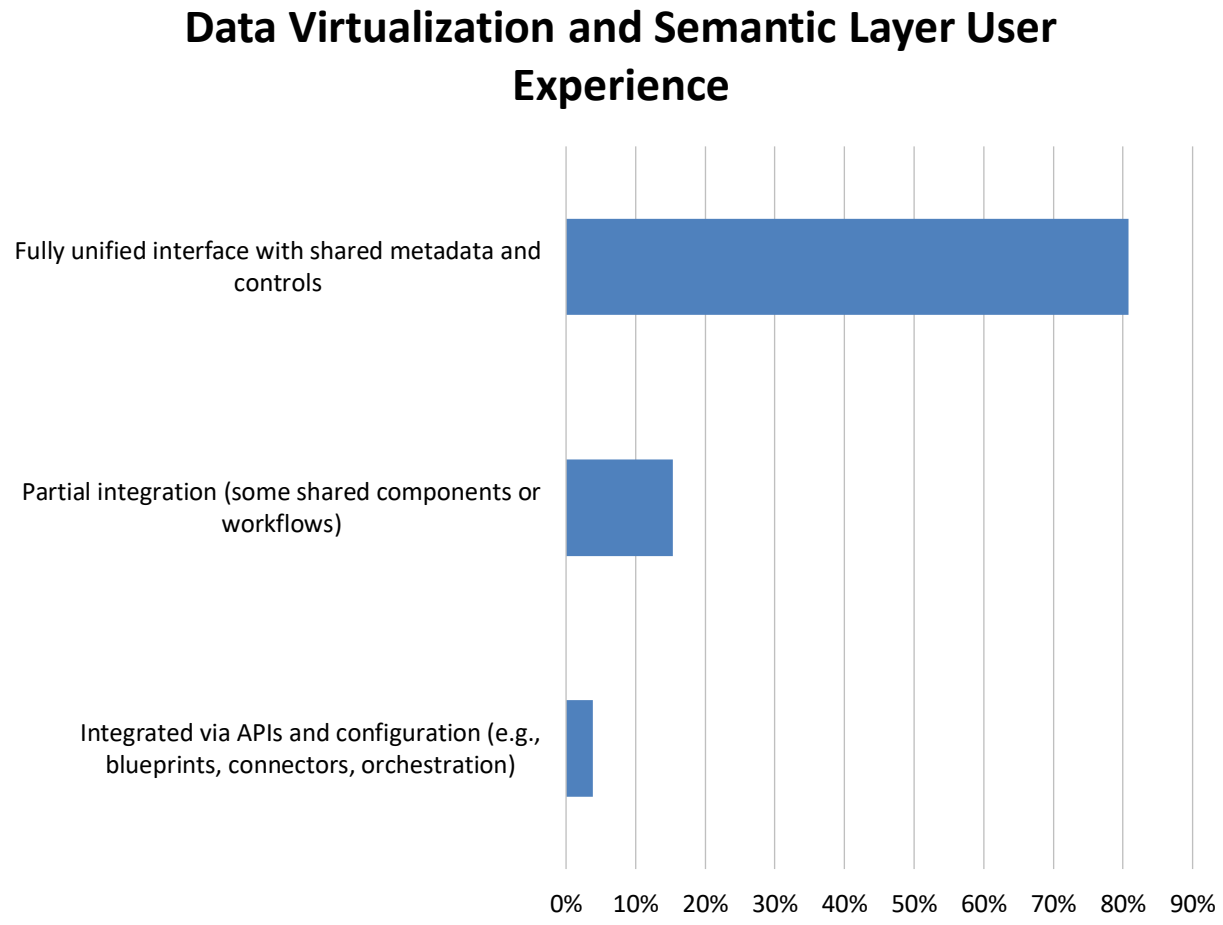


Figure 73 -- Data Virtualization and Semantic Layer User Experience

Semantic Layer and Data Virtualization Delivery

ADI vendors take varied approaches to the user experience and the physical delivery of semantic layer and data virtualization capabilities within their analytics offerings. Ninety-six percent of vendors claim their semantic layer and data virtualization technology is natively built into their core platform (fig. 74). Twenty-three percent support integration through configuration with third-party tooling. A small fraction of 8% indicates they support other approaches.

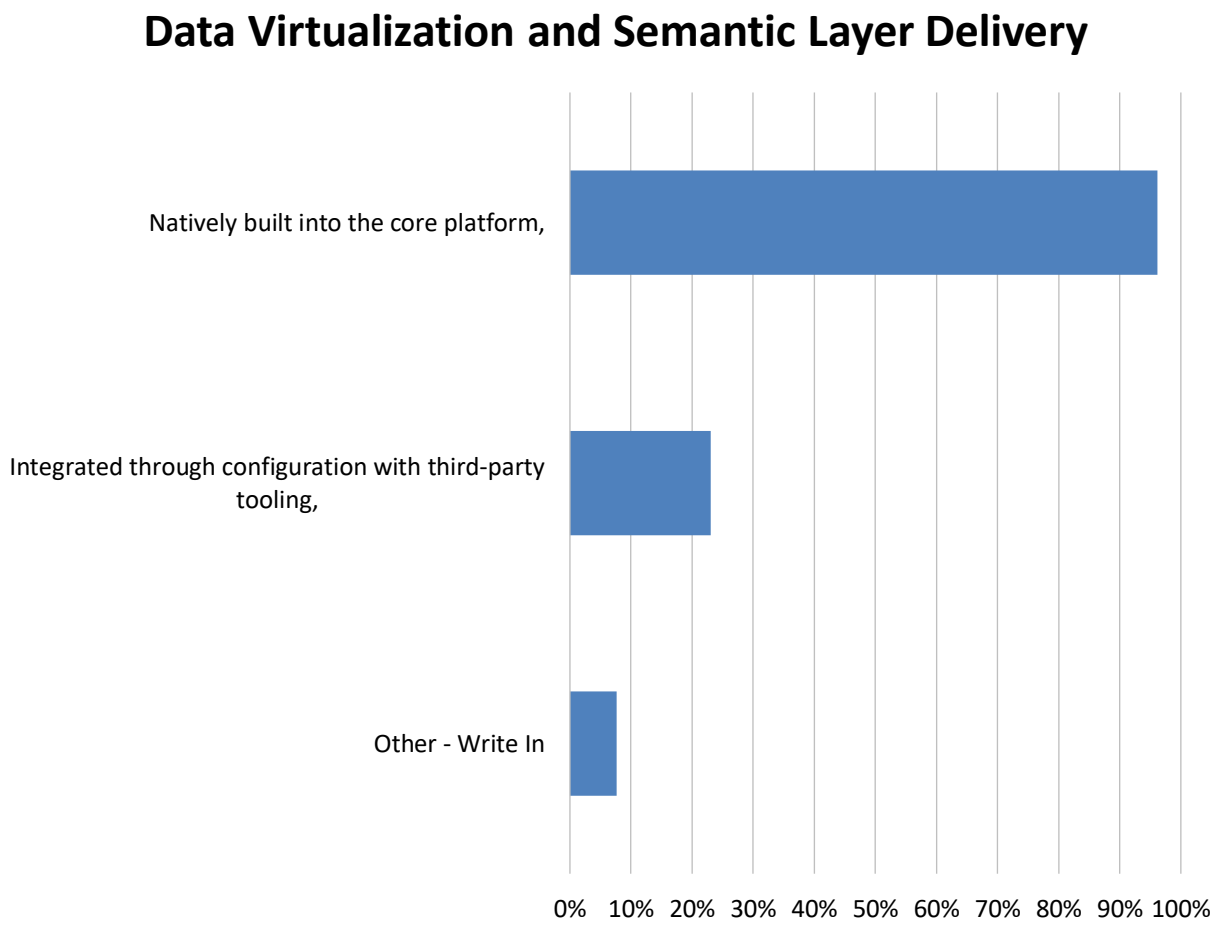


Figure 74 -- Data Virtualization and Semantic Layer Delivery

Vendor Ratings

Vendor Ratings

Vendors are evaluated across five categories of measurement including: styles of data integration and access management, modeling and transformation features, governance and administrative capabilities, scalability and performance capabilities, and performance optimization and lifecycle support features.

Tight groupings across the top half of vendors and multiple ties for 1st, 2nd, 3rd, 4th and 5th place suggest a highly competitive marketplace.

Top rated vendors include AtScale (1st), Cube (1st), Denodo (1st), Dremio (1st), ibi (1st), Kyvos (2nd), Palantir (2nd), Ascend (3rd), Strategy (3rd), Domo (4th), insightsoftware (4th), Zoho (4th), ServiceNow (5th) and Sisense (5th).

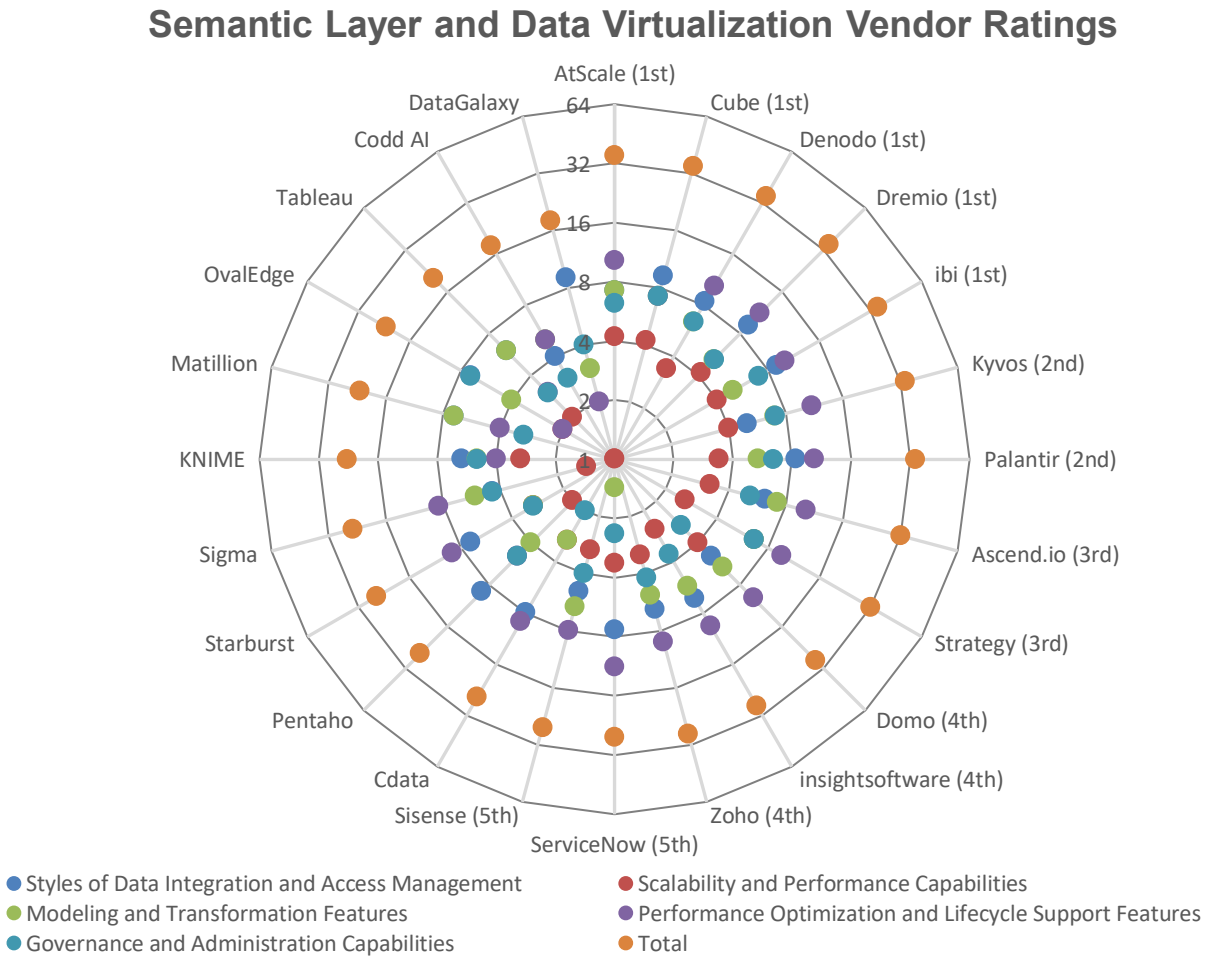


Figure 75 - Semantic layer and data virtualization vendor ratings

Semantic Layer and Data Virtualization Buyers Guide

This buyers guide presents a structured comparison of vendor capabilities across six key evaluation domains. Each section covers one domain, with vendors listed as rows and individual capabilities as columns. A dot (●) indicates the capability is supported or confirmed; a dash (–) indicates it is not confirmed or not applicable.

IMPORTANT: This guide presents vendor-supplied data across all evaluated criteria, offering readers full transparency into each vendor's reported capabilities. The ratings, by contrast, apply a weighted scoring methodology that accounts for factors such as relative importance of criteria, market context, and analytical validation. As a result, a vendor's profile in the Buyers' Guide may not directly correspond to its position in the ratings. We encourage readers to use the buyers' guide as a detailed reference for comparing vendors on specific dimensions, and the Ratings as a synthesized, editorially informed assessment of overall vendor strength.

Evaluation Domains

1. **Data Integration & Access Management** (8 capability areas)
2. **Scalability & Performance** (4 capability areas)
3. **Modeling & Transformation** (7 capability areas)
4. **Performance Optimization & Lifecycle Support** (11 capability areas)
5. **Governance & Administration** (7 capability areas)
6. **User Experience** (2 capability areas)

Legend

●	Capability supported / confirmed
–	Capability not confirmed or not applicable

Note: Vendor responses are self-reported and have been confirmed but not independently verified. Buyers are encouraged to conduct proof-of-concept evaluations for mission-critical requirements.

Data Integration & Access Management

Vendor	Bulk / Batch Data Flow	Real-time / Event Streaming	Message-oriented Flow	Semantic Mapping Across Sources	Multi-source Integration	APIs & Connectors	Granular Access Control	DAX Live Connectivity
Ascend.io	●	●	–	●	●	●	●	–
AtScale	●	–	–	●	●	●	●	●
Cdata	●	●	–	●	●	●	●	●
Codd AI	–	–	–	●	●	●	●	–
Cube	●	●	●	●	●	●	●	●
DataGalaxy	●	●	●	●	●	●	●	●
Denodo	●	●	●	●	●	●	●	●
Domo	●	–	–	●	●	●	●	–
Dremio	●	●	●	●	●	●	●	●
ibi	●	●	●	●	●	●	●	●
insightsoftware	–	●	●	●	●	●	●	–
KNIME	●	●	–	●	●	●	●	–
Kyvos	●	–	–	●	●	●	●	–
Matillion	●	●	●	●	●	●	●	–
OvalEdge	–	●	–	●	●	●	●	●
Palantir	●	●	●	●	●	●	●	●
Pentaho	●	●	●	●	●	●	●	●
ServiceNow	●	●	●	●	●	●	●	–
Sigma	●	–	–	●	●	●	●	–
Sisense	●	–	–	●	●	●	●	–
Starburst	●	●	●	●	●	●	●	–
Strategy	●	–	–	●	●	●	●	●
Tableau	●	●	–	●	●	●	●	–
Zoho	●	●	–	●	●	●	●	–

Scalability & Performance

Vendor	Data Persistence & Caching	Pre-fetch / Pre-transform	Automated Data Placement	Distributed Query Optimization
Ascend.io	●	–	●	●
AtScale	●	●	●	●
Cdata	●	●	–	●
Codd AI	●	–	–	–
Cube	●	●	●	●
DataGalaxy	–	–	–	–
Denodo	●	●	●	●
Domo	●	●	●	●
Dremio	●	●	●	●
ibi	●	●	●	●
insightsoftware	–	●	–	●
KNIME	●	●	●	–
Kyvos	●	●	●	●
Matillion	●	–	–	–
OvalEdge	●	–	●	–
Palantir	●	●	●	●
Pentaho	●	–	●	–
ServiceNow	●	–	●	●
Sigma	●	–	–	●
Sisense	●	●	●	–
Starburst	●	●	–	●
Strategy	●	●	–	●
Tableau	●	–	–	●
Zoho	●	●	–	●

Modeling & Transformation

Vendor	Multidimensional Models	Calculated Measures & Formulas	Custom / Dynamic Aggregations	Slowly Changing Dimensions	Sparse Data & Compression	AI Auto Model	AI Co-pilot
Ascend.io	●	●	●	●	●	●	●
AtScale	●	●	●	●	●	●	●
Cdata	–	–	–	●	●	●	–
Codd AI	●	●	●	–	–	●	●
Cube	●	●	●	●	●	●	●
DataGalaxy	●	–	●	–	–	–	●
Denodo	●	●	●	●	●	●	●
Domo	●	●	●	●	●	●	–
Dremio	–	●	●	●	–	●	●
ibi	●	●	●	●	●	–	–
insightsoftware	–	●	●	●	–	●	●
KNIME	●	●	●	–	–	●	●
Kyvos	●	●	●	●	●	●	●
Matillion	●	●	●	●	●	●	●
OvalEdge	●	●	–	–	–	●	●
Palantir	●	●	●	●	●	●	–
Pentaho	●	●	●	●	–	–	–
ServiceNow	–	–	●	–	–	–	–
Sigma	●	●	●	●	–	●	●
Sisense	●	●	●	●	–	●	●
Starburst	–	●	●	●	–	–	–
Strategy	●	●	●	●	●	●	●
Tableau	●	●	●	●	–	●	●
Zoho	●	●	●	–	–	●	●

Performance Optimization & Lifecycle Support

Vendor	Query Repair & Optimization	Performance Monitoring	Auto Query Tuning	Incremental Data Loading	End-to-End Testing	Materialized Views	Workload-aware Query Routing	Incremental Query Pushdown	Pruning & Late Binding	Concurrency Scaling	Query Failover
Ascend.io	●	●	●	●	●	●	–	●	●	●	●
AtScale	●	●	●	●	●	●	●	●	–	●	●
Cdata	●	●	–	●	●	●	●	●	–	●	●
Codd AI	●	–	●	–	●	●	–	–	–	–	●
Cube	●	●	●	●	●	●	●	–	–	–	–
DataGalaxy	–	–	–	●	–	●	–	–	–	–	–
Denodo	●	●	●	●	●	●	●	●	●	●	●
Domo	●	●	●	●	●	●	●	●	–	●	●
Dremio	●	●	●	●	●	●	●	●	●	●	●
ibi	●	●	●	●	●	●	●	●	–	●	●
insightsoftware	●	–	●	●	●	●	●	●	–	●	●
KNIME	–	–	–	●	●	–	–	–	–	●	●
Kyvos	●	●	●	●	●	●	●	●	●	●	●
Matillion	–	–	–	●	●	●	–	●	–	–	–
OvalEdge	●	–	–	–	–	–	–	–	–	●	–
Palantir	●	●	●	●	●	●	●	●	●	●	●
Pentaho	–	–	–	●	●	●	–	–	–	●	●
ServiceNow	●	●	●	●	●	●	●	●	●	●	●
Sigma	●	●	●	●	●	●	–	●	–	●	●
Sisense	●	●	●	●	●	●	–	–	–	●	●
Starburst	–	●	●	●	–	●	●	●	●	●	●
Strategy	–	●	●	●	●	●	●	●	●	●	●
Tableau	–	–	–	●	●	–	–	●	–	–	–
Zoho	–	●	●	●	●	●	●	–	●	●	●

Governance & Administration

Vendor	Version Control	Audit History	Simulation & Validation	Scheduling & Orchestration	Automated Regression Testing	Business Glossary Mapping	Multilingual Support
Ascend.io	●	●	●	●	●	–	–
AtScale	●	●	●	●	●	●	–
Cdata	●	–	–	●	–	–	–
Codd AI	–	–	–	●	●	●	–
Cube	●	●	●	●	●	●	●
DataGalaxy	●	●	–	–	–	●	●
Denodo	●	●	●	●	●	●	●
Domo	–	–	●	●	–	●	–
Dremio	●	●	●	●	–	●	–
ibi	●	●	●	●	●	●	●
insightsoftware	–	–	●	–	–	●	●
KNIME	●	●	●	●	●	–	–
Kyvos	●	●	●	●	●	●	●
Matillion	–	●	●	●	–	–	–
OvalEdge	●	●	●	●	●	●	●
Palantir	●	●	●	●	●	●	●
Pentaho	●	●	–	●	–	●	●
ServiceNow	●	●	–	–	–	–	–
Sigma	●	●	–	●	–	●	●
Sisense	●	●	–	●	–	●	–
Starburst	–	●	–	●	–	●	–
Strategy	●	●	●	●	●	●	●
Tableau	–	–	●	–	–	●	●
Zoho	●	●	–	●	–	●	–

User Experience

Vendor	Unified UX for Virtualization & Semantic Layer	Delivery of Data Virtualization and Semantic Layer Capabilities
Ascend.io	Fully unified interface with shared metadata and controls	Natively built into the core platform
AtScale	Fully unified interface with shared metadata and controls	Natively built into the core platform
Cdata	Fully unified interface with shared metadata and controls	Natively built into the core platform
Codd AI	Fully unified interface with shared metadata and controls	Natively built into the core platform
Cube	Fully unified interface with shared metadata and controls	Natively built into the core platform
DataGalaxy	Fully unified interface with shared metadata and controls	Natively built into the core platform
Denodo	Fully unified interface with shared metadata and controls	Natively built into the core platform
Domo	Fully unified interface with shared metadata and controls	Natively built into the core platform
Dremio	Fully unified interface with shared metadata and controls	Natively built into the core platform
ibi	Fully unified interface with shared metadata and controls	Natively built into the core platform
insightsoftware	Not specified	Natively built into the core platform
KNIME	Partial integration (some shared components or workflows)	Natively built into the core platform
Kyvos	Fully unified interface with shared metadata and controls	Natively built into the core platform
Matillion	Fully unified interface with shared metadata and controls	Not specified
OvalEdge	Fully unified interface with shared metadata and controls	Natively built into the core platform
Palantir	Fully unified interface with shared metadata and controls	Natively built into the core platform
Pentaho	Fully unified interface with shared metadata and controls	Natively built into the core platform
ServiceNow	Fully unified interface with shared metadata and controls	Natively built into the core platform
Sigma	Partial integration (some shared components or workflows)	Natively built into the core platform
Sisense	Partial integration (some shared components or workflows)	Natively built into the core platform
Starburst	Integrated via APIs and configuration (e.g. blueprints connectors orchestration)	Natively built into the core platform
Strategy	Partial integration (some shared components or workflows)	Natively built into the core platform
Tableau	Not specified	Natively built into the core platform
Zoho	Fully unified interface with shared metadata and controls	Natively built into the core platform

Other Dresner Advisory Services Research Reports

- Wisdom of Crowds® "Flagship" Business Intelligence Market Study
- AI Development Platforms
- Agentic AI Assisted Analytics
- Agentic AI Automation Platforms
- Analytical Data Infrastructure
- Analytical Data Products
- Carbon Planning and Analysis
- Cloud Computing and Business Intelligence
- Data Catalog
- Data Engineering
- AI, Data and Analytics Governance
- Embedded Business Intelligence
- Enterprise Performance Management
- Enterprise Resource Planning (ERP)
- ESG Reporting
- Financial Consolidation, Close Management and Reporting
- Guided Analytics
- ModelOps
- Self-Service Business Intelligence
- Supply Chain Planning and Analysis
- Workforce Planning and Analysis

Appendix: 2026 Semantic Layer & Data Virtualization Survey Instrument

Please provide your contact information below:
First Name*: _____
Last Name*: _____
Company: _____
Email Address*: _____

Major Geography*
( ) Asia Pacific
( ) Europe, Middle East and Africa
( ) Latin America
( ) North America

Please specify your city and country
City: _____
Country: _____

Please provide your contact information below:
Address 1: _____
Address 2: _____
City: _____
State: _____
Zip: _____
Country: _____
Phone Number: _____

What is your current title?
_____

What function are you a part of?
( ) Data Science Function
( ) Executive Management
( ) Finance
( ) Business Intelligence / Analytics Competency Center
( ) Human Resources
( ) Information Technology (IT)
( ) Marketing
( ) Operations (e.g., Manufacturing, Supply Chain, Services)
( ) Research and Development (R&D)
( ) Sales
( ) Strategic Planning Function
( ) Other - Write In: _____

Please select an industry
( ) Advertising
( ) Aerospace
( ) Agriculture
( ) Apparel & Accessories
( ) Automotive
( ) Aviation
( ) Biotechnology
( ) Broadcasting
( ) Business Services
( ) Chemical
( ) Construction
( ) Consulting
( ) Consumer Products
( ) Defense
( ) Distribution & Logistics
( ) Education (Higher Ed)
( ) Education (K-12)
( ) Energy
( ) Entertainment and Leisure
( ) Executive Search
( ) Federal Government
( ) Financial Services
( ) Food, Beverage and Tobacco
( ) Healthcare
( ) Hospitality
( ) Insurance
( ) Legal
( ) Manufacturing
( ) Mining
( ) Motion Picture and Video
( ) Not for Profit
( ) Pharmaceuticals
( ) Publishing
( ) Real Estate
( ) Retail and Wholesale
( ) Sports
( ) State and Local Government
( ) Technology
( ) Telecommunications
( ) Transportation
( ) Utilities
( ) Other - Write In: _____

How many employees does your company employ worldwide?

( ) 1-100
( ) 101-1,000
( ) 1,001-2,000
( ) 2,001-5,000
( ) 5,001-10,000
( ) More than 10,000

How old is your company?
( ) Less than 5 years old
( ) 5-10 years old
( ) 11-16 years old
( ) 16 or more years old

What sources of information do you rely upon to make vendor, product, and solution selection decisions?

	Constantly	**Often**	**Occasionally**	**Rarely**	**Not at all**
Vendor website	( )	( )	( )	( )	( )
Internet search	( )	( )	( )	( )	( )
Crowd-sourced ratings site	( )	( )	( )	( )	( )
Large research/analyst organizations	( )	( )	( )	( )	( )
Specialized research/analyst organizations	( )	( )	( )	( )	( )
Trade press articles	( )	( )	( )	( )	( )
Generative AI query (e.g., ChatGPT)	( )	( )	( )	( )	( )

What are the main goals for leveraging data virtualization and semantic layer?

	Critical	Very Important	Important	Somewhat Important	Not Important
Ensure consistent business definitions across BI and AI tools and applications	( )	( )	( )	( )	( )
Simplify data access for business users	( )	( )	( )	( )	( )
Centralize metrics and KPIs	( )	( )	( )	( )	( )
Improve governance and data trust	( )	( )	( )	( )	( )
Reduce burden on data engineering	( )	( )	( )	( )	( )
Support data virtualization or federation	( )	( )	( )	( )	( )
Enable self-service analytics	( )	( )	( )	( )	( )

Which data virtualization and semantic layer features are most important?

	Critical	Very Important	Important	Somewhat Important	Not Important
Support for mapping, modeling and semantically aligning disparate syntax and semantics of multiple data sources	( )	( )	( )	( )	( )
Support for multidimensional data models, including cubes, dimensions, and hierarchies.	( )	( )	( )	( )	( )
Ability to create and manage calculated measures and complex formulas.	( )	( )	( )	( )	( )
Ability to integrate with various data sources, including relational databases, data warehouses, data lakes, etc.	( )	( )	( )	( )	( )
Support for custom and dynamic aggregations with support for drill to detail	( )	( )	( )	( )	( )

Support for slowly changing dimensions	( )	( )	( )	( )	( )
Query repair and optimization for source data sources	( )	( )	( )	( )	( )
Tools for monitoring query performance and identifying bottlenecks.	( )	( )	( )	( )	( )
Sparse data management and compression of n-dimensional structures	( )	( )	( )	( )	( )
Automatic query optimization and tuning capabilities.	( )	( )	( )	( )	( )
Support for real-time data updates and incremental data loading	( )	( )	( )	( )	( )
Granular control over user permissions and access levels.	( )	( )	( )	( )	( )
Availability of APIs and connectors for seamless integration with other tools and platforms (e.g.,	( )	( )	( )	( )	( )

MDX, XML/A, SQL).					