A Modern Data Strategy with Denodo
We live in a world of accelerating change, disruption, and technological breakthroughs. Since 2020, we have endured a pandemic, economic and supply chain shocks, and increasing social and geopolitical tensions. And simultaneously, we have witnessed the rise of incredible technologies such as Generative Artificial Intelligence (Gen AI), promising to transform how we live and work. To be prepared for these disruptions, an organization’s secret weapon is their data.

Despite many decades of investments in data-related technologies, organizations still struggle to deliver data to the people who need it most: front-line workers and their leadership, so they can quickly gain the insights they need, at the time they need it, to act with confidence. In order to have confidence in meeting their goals – delighting customers, managing operations, complying with regulations, or bringing innovations to market – they need data delivered in their language, fast enough to matter.

As a result, many organizations face fears, uncertainty, and doubt in their data-related initiatives. They fear that:

- It takes too long to access and use the data they need.
- They cannot make sense of the data, once they get it.
- They cannot trust results from their AI models, because the underlying data is flawed.
- They will not be compliant with data-related rules and regulations, such as the protection of sensitive data.
- Their data projects will be delayed and incur unexpected costs.
- Their cloud and data modernization projects will not yield intended results after years of effort and millions of dollars invested.

In fact, the 11th annual survey of Chief Data Officers (CDOs) and Chief Data and Analytics Officers (CDAOs), conducted by NewVantage Partners, found that only 23.9% of organizations characterize themselves as being data-driven, and only 20.6% say that they have developed a data culture within their organizations.

On the other hand, for 61.8% of respondents, responsibilities have shifted from “defensive” activities, such as compliance and regulatory reporting, to “offensive” ones, which include revenue growth, business expansion, and customer acquisition. Also, 82% of organizations were planning to increase their investments in data modernization in 2023. Despite all this, slightly over a quarter of business leaders claim that their big data initiatives have resulted in huge challenges, and almost half of them have simply “broken-even” i.e., they have not reaped any benefits.

Clearly, a data strategy that enables organizations to reap the full benefits of data and analytics initiatives is required, one that enables them to be fearless with regard to providing governed, secure data quickly for business needs. This strategy should provide a comprehensive blueprint that outlines the necessary technology, procedures, personnel, and guidelines vital for overseeing an entity’s information resources over an extended period. It should operationalize the organization’s overarching vision concerning the acquisition, retention, dissemination, and utilization of its data resources. Ultimately, the infrastructure resulting from such a strategy should streamline data handling at each stage of the organization’s journey, facilitating accessibility for all stakeholders. The end goal is to provide the business with the data it needs for competitive advantage and success.
The Importance of a Modern Data Strategy
– What’s in It for You?

IT LEADERS, including chief information officers and enterprise architects: The 2024 Gartner® CIO and Technology Executive Survey found that CIOs in all regions of the world are faced with expected budget increases that are only marginally above projected inflation and well below expected increases in revenue. In other words, in addition to the need to meet increased demand, there will be an ongoing need for greater efficiency. CIOs also want to protect their companies against risk, cut costs across different processes, and make the most of the technology budget. Other priorities may be to support new digital lines of business, enable AI, accelerate migration to the cloud or modernize without disruptions to the business, and optimize and scale IT for the enterprise. Below, we will explore how a modern data strategy supports IT infrastructure modernization.

BUSINESS LEADERS, including customer experience directors and chief marketing officers: These leaders are responsible for overseeing and optimizing the end-to-end customer experience within the organization. They often face challenges because their teams lack timely data to meet these objectives and are overly reliant on IT teams. They also strive to stay ahead of evolving customer expectations and industry trends and seek ways to quantify the impact of customer experience initiatives and demonstrate a return on investment. They need a modern data strategy to delight customers with great experiences across all interactions, reduce customer churn through better response to issues and concerns, and bring new digital services to market. Below, we will explore how a modern data strategy can enrich customer experiences.

DATA LEADERS, including chief data and analytics officers: CDAOs are looking at how to make the lives of their data professionals easier (e.g. self-service without reliance on IT). Of course, they also have concerns around data governance (ensuring data quality, integrity, and compliance with regulations), data integration and interoperability across the organization, protecting sensitive data, accommodating the increasing volume and complexity of data over time, and aligning with best practices in data architecture. Below, we will explore how a modern data strategy meets all these goals.

With regard to self-service, CDAOs often want to promote a data culture that enables autonomous units or domains to manage and publish their own data products. This is made possible by a data mesh, which is a data-management paradigm that organizes data in domains, treats it as a product, enables self-service access, and supports these activities with federated governance. In short, business teams own the data and are responsible for it.

COMPLIANCE LEADERS, including chief compliance officers, chief risk officers, and chief privacy officers: As a result of all the rapid evolution of new kinds of risks and compliance requirements such as ethical AI, the increasing probabilities of unpredictable social/economic/geopolitical “black swan” events occurring at any time, and the increasing prevalence of transversal risks (which includes sharing risk while consolidating data with third party organizations such as partners, and reporting on this shared risk), risk management organizations are fundamentally rethinking their control functions. New and comprehensive regulations are evolving in addition to the well-known GDPR, HIPAA, and PDPA in some Asian countries, such as the proposed EU AI Act and their regional equivalents.
Compliance leaders need risk and compliance initiatives to be more directly involved in the creation and delivery of new products, services and business processes to ensure they are “risk-mitigated by design” or “compliant by design,” as opposed to getting involved after the fact. More agility is required, so they can respond more readily to new types of risks, or new compliance regulations, as they arise. And finally, they aim for greater federation, so that across the organization, teams understand they also have risk and compliance responsibility. Below, we will explore how a modern data strategy enables more effective governance, risk, and compliance initiatives.

**OPERATIONS LEADERS**, including chief operations officers: COOs and operational leads are always under the pressure to create better efficiencies, improve productivity, reduce costs of delivering services and manufacturing products, improve quality, and better manage their workforce. An established robust supplier network and enhanced customer experience directly impacts the organization’s success. To stay ahead of the competition requires them to stay abreast of market trends, leverage technology for data-driven decision-making, and continually innovate in their operational strategies. They are responsible for fostering a culture that values efficiency, quality, and continuous improvement — all crucial items for long-term growth and sustainability. They face challenges of real-time data availability to enable them to meet these requirements. Below, we will explore how a modern data strategy helps improve operational efficiency, agility, and resilience.

**FINANCIAL LEADERS**, including chief financial officers: Faced with transformative pressures including heightened competition, digitalization, regulatory changes, and shifts in economic conditions, CFOs have a new mandate: to move beyond their traditional roles and lead companies into the new frontier by building a modern finance function. The role of the CFO is now seen as shifting from “historian” to “visionary,” while also leading the digitalization of growing businesses, as they are best positioned to translate strategic initiatives into economic terms, including what they aspire to do with the technology.

Financial leaders face challenges including the cost of compliance and delivering strategic initiatives (such as data related initiatives) within the desired budget and time. They may also lack the skills to discover and access data on their own from the right source or to run analytics scenarios for predictive and prescriptive purposes. Below we will explore how a modern data strategy can help meet all these challenges.

Governed, trusted, and business-friendly data needs to be made speedily available to meet business requirements, with minimal disruption to business and technological operations. Traditionally, organizations have attempted to extract data from all data sources, load it into a central repository such as a data lake or warehouse, and prepare it for each distinct use case. This approach has proven to be time-consuming, expensive, and burdensome on central data teams. We need a modern data strategy that embraces a distributed data landscape and alleviates the need for unnecessary data movement and replication.
Embracing a Distributed Data Landscape

Some surveys have indicated that enterprises may use hundreds of data sources per day. Data volumes at organizations are growing between 60 – 100% per month. Numerous enterprises nowadays function within a distributed computing framework, where data and operations are spread across a variety of on-premises systems, multiple cloud platforms, and edge devices. Within such a complex setup, locating and managing data becomes increasingly challenging, let alone making data available for analytics, data science, and machine learning (ML).

A key pillar of a modern data strategy is embracing this distributed data landscape. Data will continue to exist in different forms and repositories as organizations grow in size and number of data initiatives.

A Logical Data Strategy

Logical data architectures and management enable access to multiple, diverse data sources while appearing as one “logical” data source to users. They are centered around unifying data that is stored and managed across multiple data management systems, including traditional data sources like databases, enterprise data warehouses, data lakes, and more, and other data sources like applications, big data files, web services, and the cloud, to meet practically every possible analytics use case.

Logical data management enables practices like data discovery, access, security, integration, and sharing to be performed through a logical (or virtual) representation instead of directly on each physical source system. It enables the consistent implementation of policies and practices to manage, integrate, and use an organization’s data, regardless of each source system’s nature, location, and capabilities. It leverages a data delivery platform that abstracts access to multiple data systems for business consumers, hiding the complexity and exposing the data in business-friendly formats, while at the same time guaranteeing the delivery of data according to predefined semantics and data governance rules.

The logical approach to data integration and data management, supporting data fabric, data mesh, and data hub architectures, is realized by data virtualization.

The benefits include:

- Real-time access to all data through any analytics tool or data API without having to move or copy it.
- Rapid development, low maintenance, flexible data delivery and management, providing end-to-end visibility.
- Self-service data discovery and access with governance and security.
Introducing the Denodo Platform

The Denodo Platform is an award-winning logical data management platform for delivering data in the language of business, at the speed of business, for all data-related initiatives across the organization. Each of these initiatives promise transformative revenue growth, cost reduction, productivity improvements, and risk reduction for the organization, but only if data is delivered in the right form at the right time. We cover five of these initiatives in the section below.

**IMPROVED CUSTOMER EXPERIENCE**
Use data to enhance satisfaction, address needs promptly, and uncover new business opportunities.

**CENTRALIZED GOVERNANCE, RISK AND COMPLIANCE**
Data policies and rules enabling governance and adherence to regulations and standards.

**ENHANCED OPERATIONAL EFFICIENCY, AGILITY, AND RESILIENCE**
Respond dynamically to market shifts, streamline FinOps efficiency, manage inventory and supply chain effectively, and enable automated workflows.

**DATA SELF-SERVICE FOR DATA MODERNIZATION**
Accelerated decision making, increased productivity, innovation enhancement, and ultimately, data democratization.

**IT INFRASTRUCTURE MODERNIZATION**
Facilitating the movement to cloud or migrating from legacy applications and managing large volumes of diverse data in myriad formats and types.

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**LOGICAL DATA STRATEGY**

- **Ease of Use**
- **Agile Data Integration**
- **Centralized Security and Governance**
- **Futureproof**

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**DATA INFRASTRUCTURE**

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Figure: A logical data strategy supports key business initiatives
IMPROVING CUSTOMER EXPERIENCE

Organizations are continuously striving to improve the customer experience. Across all industries, organizations work on improving customer satisfaction and loyalty, reducing churn, adapting to customer expectations, acquiring new customers, and converting prospects. To meet these and other customer-centric goals, organizations strive to personalize customer interactions, deliver efficient customer support via multiple channels, supply feedback loops to actively discover and understand customer sentiment, and implement 360-degree views of customers.

These types of initiatives require a strategic approach to improving the customer experience, as well as a data-driven mindset. But they are hindered by a few key challenges:

- **Data Silos.** Struggles with fragmented customer data across different departments or systems.
- **Limited Personalization Capabilities.** Challenges in delivering personalized experiences due to limited insights into individual customer preferences.
- **Changing Customer Expectations.** Challenges staying ahead of evolving customer expectations and industry trends.
- **The Inability to Measure and Demonstrate ROI.** Struggles attempting to quantify the impact of customer experience initiatives and demonstrate returns on investment.

By unifying disparate customer data in real time, the Denodo Platform eliminates data silos, so organizations can better understand customer behavior, preferences, and expectations. Organizations can gather comprehensive customer data from a wide variety of touchpoints, including website interactions, social media, in-store transactions, customer service interactions, and more. They can leverage both quantitative and qualitative data to gain a holistic view of customer behavior and preferences. Organizations can leverage diverse, real-time customer data to deliver personalized content, product recommendations, and promotions. They can also dynamically adjust website interfaces and marketing messages based on individual customer preferences.

With the Denodo Platform, organizations can employ advanced analytics to derive actionable insights from customer data. They can leverage this data to analyze customer journeys, identify patterns, anticipate future needs to proactively enhance the customer experience, and confidently demonstrate the ROI of every customer-experience initiative.

**Landsbankinn**, the largest financial services institution in Iceland, implemented a data mesh strategy to enable their domains to produce their own products to be consumed later by the business users through the logical data warehouse.

It was difficult for users to find and access the data they needed. There were around 45 data sources, including five Oracle databases, two data warehouses, and 10 Microsoft SQL Server databases. On top of this, flat files, Excel files, XML files, APIs from internal and external data sources were also used.

Landsbankinn built a logical data warehouse to stop the scattering of business logic, data security, and administration of its different data platforms. As a result, they drastically reduced the time to provide business users with new data.
CENTRALIZE DATA GOVERNANCE, RISK, AND COMPLIANCE

To effectively manage data governance, risk, and compliance, organizations need effective data controls. Such controls can include not only policies governing data access and establishing data lineage and authenticity, but also responses to right-to-be-forgotten requests under Europe’s General Data Protection Regulation (GDPR), and similar data requests. In addition to regional regulations, organizations must comply with the demands of numerous industry-specific regulations, and the expectation for all regulatory compliance activities is that they be timely. Some examples include the E.U.’s Corporate Sustainability Reporting Directive, HIPAA, Basel II, Sarbanes-Oxley, and others.

Unfortunately, the data necessary for managing data governance, risk, and compliance is often stored across many different kinds of sources, such as on-premises databases and data warehouses, cloud repositories, transactional systems, and streaming sources, and many organizations manage data that is also geographically distributed.

As a result, organizations face five key challenges in managing data governance, risk, and compliance:

- Repetitive manual labor, as the policies for each data source need to be managed individually.
- The inability to implement global controls across the entire infrastructure, simultaneously.
- Limited ability to respond to compliance-related requests, especially when they require timely reports on distributed data.
- A lack of real-time controls, such as alerts or triggered actions.
- No unified view of data governance, risk, and compliance, since the necessary data is stored across multiple different systems.

The need is to pull together data from diverse sources to report on overall compliance posture and gauge the risk of being non-compliant, and also putting in place controls that alert governance teams when an organization is non-compliant. Data privacy regulations such as GDPR and PDPA require that strict access controls be put in place, which may be challenging in a distributed data landscape. Data sovereignty is another consideration: often sensitive data cannot leave the physical borders of many countries, which is again challenging to address in multi-cloud, multi-regional environments.

By establishing a single layer for accessing all underlying data sources, the Denodo Platform reduces time-consuming, error-prone policy-management activities by enabling organizations to manage all policies from a single point of control across the entire data infrastructure. The Denodo Platform enables global policies that affect all of the individual data sources, simultaneously. If an administrator makes a change to a global policy, the change is updated in real-time and immediately enforced across the entire organization.

By enabling real-time access to data across myriad different kinds of systems, the Denodo Platform greatly accelerates compliance reporting. Stakeholders do not have to chase down the required data, transform it, and submit a request to have it copied to a different repository, just to enable reporting.

With real-time access, organizations can implement real-time alerts and continuously updated usage reports. Organizations can set thresholds to trigger automatic actions, or immediately respond to potential fraud or attempted breaches. Finally, a real-time, unified data-access layer enables organizations to gain a unified, enterprise view over data governance, risk, and compliance.
Albertson Companies, Inc., operates more than 2,200 retail food and drug stores and is the second largest supermarket chain in North America.

Albertsons engaged in a program to modernize its data infrastructure and move its critical data assets to Microsoft Azure Cloud but had security concerns about customer data. The company wanted to continue to run personalized online marketing campaigns and launch advanced analytics program on its customer data.

The data contained customer personally identifying information/protected health information/Payment Card Industry (PII/PHI/PCI) information.

Albertsons used the Denodo Platform to control and secure access to millions of rows of customers’ personal information by integrating Protegrity into the Denodo Platform and enabling role-based access control to restricted data elements.

The Denodo Platform enabled Albertsons to manage its customer-restricted data (PII/PHI/PCI) using replacement tokens in the Azure public cloud environment. This in turn enabled Albertsons’ analytics teams to perform advanced customer analysis on this data while significantly reducing access to restricted data elements and protecting sensitive customer data.

IMPROVING OPERATIONAL EFFICIENCY, AGILITY, AND RESILIENCE

Operational leaders face a landscape marked by unprecedented economic and technological change, requiring both immediate responses and strategic foresight. These developments are fueled by global supply chain volatility and rapid technological shifts affecting interactions with suppliers, departments, workers, and customers.

As a result, operational leaders face a number of key challenges as they strive to improve operations, including:

- **Volatile markets.** In such a climate, operational leaders struggle to meet customer needs. They need to be able to make changes across supply chains, and also make quick revisions to products, services, and inventory levels.

- **Poor visibility into operational costs.** Operational leaders struggle to improve efficiencies across labor, supplier, and other dimensions, as well as optimize financial operations (FinOps) for cloud resources.

- **Distributed, siloed data.** Data is often stored across diverse systems, including multiple ERP and CRM systems, complicating informed, operational decision-making across operations, sales, and finance departments.

- **Regulatory pressure.** Also, when data is distributed, complying with regulatory requirements is unsustainably complex and time-consuming. This makes it challenging for operational leaders to adhere to standards while maintaining operational efficiency.

- **Error-prone manual workflows.** These lead to longer lead times and higher operational costs.
With the Denodo Platform, organizations can harness the power of real-time data integration to optimize and automate supply chains and quickly make changes to products, inventory levels, and the delivery of services, to meet evolving customer needs more effectively in shifting market conditions. The Denodo Platform enables operations leaders to implement real-time data tracking and analytics to optimize cloud spending, align expenditures with business outcomes, and enhance financial agility in cloud resource management. It delivers real-time analytics and data analysis, empowering agile decision-making based on the latest, most comprehensive information and operational intelligence, enhancing overall operational efficiency. With the Denodo Platform, organizations can reduce manual effort and unnecessary steps, leading to faster turnaround times and lower operational costs. The Denodo Platform’s bi-directional data flow provides swift, real-time data integration and analytics through its APIs, enhancing app functionality, speeding up development timelines, and driving data-informed innovations.

**Estes Express Lines** is the largest privately held freight transportation company in North America. The company created a logistics digital twin powered by Denodo. This resulted in a chain of custody: a process that tracked the movement of packages by documenting each person who handled it, the date/time it was collected and/or transferred, and when it was delivered, to provide unprecedented insights.

Optimized efficiencies and improved margins were attained by looking at both costing and pricing models to create more efficient and effective quotes and by reducing claims.

By analyzing customer scores and performing sentiment analysis to understand trends, adjust offerings, and create a better customer experience, customer care was better integrated with operations and sales.

The organization was able to better model their facilities and routes: to understand where they can add more shipments to improve profitably, find load imbalances, contract appropriately, and plan for spikes.
DATA SELF-SERVICE FOR DATA DEMOCRATIZATION

Since data is a pivotal asset for organizations today, it is crucial to embrace data self-service for data democratization. Data self-service enables business professionals to independently conduct queries and generate reports, fostering a culture of data-driven decision-making. The benefits of self-service are numerous, including accelerated decision-making, increased productivity, innovation enhancement, and ultimately, data democratization. It enables teams to fully utilize the organization's data spectrum while freeing IT resources to focus on more strategic tasks, leading to cost savings and improved data quality.

However, this journey towards data democratization is not without its challenges, which include:

- **An Overreliance on IT.** Organizations depend heavily on their IT departments for data access, leading to significant bottlenecks and delays in the data access pipeline. This dependence creates inefficiencies and hinders timely decision-making.

- **Data Fragmentation.** Data scattered across different departments and systems poses integration challenges. This fragmentation impedes informed decision-making, as data is not readily accessible or understandable across the organization.

- **Delayed Decision-Making.** The time lag in gaining crucial data insights often results in missed opportunities and an inability to swiftly adapt to changing market dynamics. This delay adversely affects business outcomes and competitive positioning.

The Denodo Platform reduces the traditional dependency on IT for data retrieval and management. The platform enables business users to query and analyze data independently by presenting them with a view of enterprise-wide data obtained through real-time, logical connections rather than physical replication. This autonomy significantly decreases bottlenecks in data access, enabling IT resources to focus on strategic initiatives rather than routine data retrieval tasks.

The platform tackles the issue of data fragmentation head-on by integrating diverse data sources into a cohesive semantic layer. This approach ensures that data, regardless of its original location or format, is accessible through a centralized virtual data-access layer. This unified view of data eliminates integration hurdles, enhancing decision-making with coherent, comprehensive data insights.

By providing real-time access to distributed data, the Denodo Platform delivers business users up-to-date information, crucial for making timely, informed decisions in a fast-paced business environment. By removing delays in data access, the Denodo Platform empowers organizations to react swiftly to market changes and customer demands, ensuring optimal business outcomes.

A logical data management strategy is a perfect enabler for a Data Mesh. Traditional replication-based data integration approaches, such as extract, transform, and load (ETL) processes, are not capable of performing this function, as they are designed to move data from multiple data sources into a single repository. As mentioned above, Denodo provides a single point to enforce security and governance. Organizations are enabled to implement highly tailored semantic models above the data sources, which effectively serve as data domains. A Data Catalog provides a means to categorize and add metadata to data products, enabling various departments with self-service access to these products. Domain specific data can thus be curated, governed, and accessed by those who have the requisite rights and permissions.

The Denodo Platform revolutionizes data management by facilitating a seamless, real-time, and autonomous data access experience, addressing the core challenges faced in the journey towards data democratization and self-service.
IT INFRASTRUCTURE MODERNIZATION

The biggest challenge of CIOs is achieving a good return on investment (ROI) from infrastructure modernizations, which might include migrations to foundational cloud systems or the implementation of improved data and IT operations. Overall, such initiatives seek to enhance the ways that an organization works and serves customers, all while striving to minimize the impact that such initiatives can have on day-to-day business operations. Many technology companies have dubbed this “the era of productivity,” and so IT infrastructure must also have the agility and flexibility to support new digital lines of business. For example, many “superapps” across the world, such as Alipay in Asia and Omnii in Central America, often launch new business lines (such as hotel bookings, lifestyle, healthcare) and must have the IT infrastructure adaptability to do so.

Successful IT infrastructure modernization initiatives require organizations to overcome a number of key challenges, including:

- **Large volumes of diverse data types.** Data volumes are steadily increasing, and data is stored in multiple sources, in varying forms, and often of questionable data quality. Semi-structured data, such as JSON and Internet of Things (IoT) log files, might need to be mixed with transactional data to get a complete picture of a customer buying experience, while emails and social media content might need to be interpreted to understand customer sentiment to enrich operational decisions, ML models, or decision-support applications.

As the #2 equipment rental provider in North America, Sunbelt Rentals had a clear goal: to become #1. To achieve that, the company would have to expand its customer base and offerings, which is a multifaceted goal. To run targeted marketing campaigns, recommendation engines, and other similar activities, Sunbelt Rentals was relying on extract, transform, and load (ETL) processes to replicate the data from multiple source systems into a single centralized database. However, this approach was unsustainably costly, time-consuming, and resource intensive.

A logical data fabric, enabled by the Denodo Platform, enabled Sunbelt business and developer teams to access disparate, trusted data regardless of source, location, or structure.

The company can now pull over 500 tables from an ERP system in less than three minutes, for a 200% productivity improvement over previous data integration methods, without requiring engineering support.

Business users can now leverage high-performance reports for better, faster decisions.

Sunbelt Rentals can now seamlessly run targeted marketing campaigns across customer segments.
Infrastructural rigidity. As the data and AI needs of the business increase, so does the burden on IT infrastructure to adapt. Organizations need infrastructures that account for a distributed data landscape, those that are not bound by particular formats and data structures, and those that are agile enough to meet complex business demands quickly, without major changes to the underlying infrastructure.

Downtime during migrations and modernization activities. Organizations need to ensure that during any changes to the IT infrastructure, the impact on daily operations is minimized. This includes making sure that performance, availability and cost SLAs to the business continue to be met, during and after the modernization project.

The Denodo Platform supports extremely large data volumes and myriad formats and types, including streaming and historical, and structured, semi-structured, and completely unstructured data. The Denodo Platform can accommodate these large, diverse volumes and enable rapid data management, decreasing data delivery times by 65% over extract, transform, and load (ETL) processes. The Denodo Platform automatically integrates disparate data sources, optimizes query requests, and builds in a centralized governance architecture so organizations can access the data they need, faster. With the Denodo Platform, organizations can create complex data sets leveraging real-time data across multiple data sources.

With the unified data-access layer that the Denodo Platform enables above organizations’ existing data infrastructure, organizations can adapt to myriad innovations without having to perform extensive changes to the underlying infrastructure. Fundamentally, the Denodo Platform is built for highly distributed data landscapes. In addition, the Denodo Platform can automate the integration of data across disparate sources using AI/ML, enabling data scientists to quickly get what they need to build models and develop insights. By enabling a unified semantic layer above the data sources, the Denodo Platform provides data scientists—and other data stakeholders—with the agility to work iteratively, again without affecting the underlying data sources.

Similarly, by shielding business users and consuming applications from the underlying complexities of data infrastructure, the Denodo Platform ensures business continuity during migrations from on-premises or legacy applications to the cloud. These same capabilities also streamline mergers and acquisitions, which often involve bringing together disparate IT systems and data sources.

Prologis provides efficient logistics real estate solutions to the world.

For many years, Prologis managed its data via a global, on-premises data warehouse comprised of 27 servers supporting a series of databases, integration servers, and reporting servers. Dedicated systems captured changed data from source systems and sent it to the data warehouse. The primary vehicle for moving source data to the data warehouse was a set of ETL servers.

Prologis wanted to modernize its data infrastructure to include cloud capabilities, as well as to introduce efficiencies that would accelerate analytics.

For the critical cloud component, Prologis implemented a Snowflake cloud-based data warehouse alongside its existing on-premises data warehouse.

The Denodo Platform enabled a seamless migration to Snowflake without impacting business operations.

Analytics were accelerated by as much as 30%.
Data Management for Gen AI

If 2023 was the year that Gen AI became widely recognized as potentially transformative, then 2024 onwards will be the era when this potential becomes reality. However, Gen AI-based applications can only be as reliable as the data they are based on. According to McKinsey, 72% of organizations identify data management as a key requirement in implementing AI use cases.

The Denodo Platform, leveraging data virtualization technology, eliminates the need for data movement or consolidation before augmenting an AI application. It provides a single, consolidated gateway for AI applications to access integrated data and offers a number of other key benefits, including:

- A unified, secure access point for LLMs to interact with and query all enterprise data (ERPs, operational data marts, EDWs, application APIs)
- A rich semantic layer. Providing LLMs with the needed business context and knowledge (such as table descriptions, business definitions, categories/tags, and sample values)
- Quick delivery of logical data views that are de-coupled and abstracted from the underlying technical data views (which can be difficult to use by LLMs)
- Delivery of LLM-friendly wide logical table views, without first needing to combine multiple datasets physically
- Built-in query optimization relieves LLMs from dealing with specific data source constraints or optimized join strategies.

With these benefits, the Denodo Platform is a perfect enabler for Gen AI. The semantic layer makes data stored in the canonical data platforms accessible with one consistent, secure interface for Gen AI applications. The Denodo Platform also manages the necessary metadata to provide Gen AI apps with the information they need, including data schemas, field descriptions with contextual information, and business names of the field.
Conclusion

The modern data landscape demands a strategic approach to overcome challenges such as data fragmentation, governance complexities, and the imperative for operational efficiency. The Denodo Platform emerges as a pivotal solution, offering a logical data management framework that seamlessly integrates distributed data sources while ensuring integrity and governance. With the Denodo Platform, organizations empower business users with self-service capabilities, fostering a culture of data-driven decision-making and democratizing data access. From enhancing customer experiences to centralizing compliance efforts, improving operational efficiency, and modernizing IT infrastructure, the Denodo Platform aligns with the strategic objectives of a wide variety of stakeholders.

Denodo’s logical and agile data management strategy enables organizations to overcome the fear, uncertainty, and doubt that their data estates will not be good enough to deliver data in the language of the business, at the speed of business. It enables organizations to be fearless in their data management activities. Denodo provides the recipe for unlocking innovation, sustainability, and growth opportunities, ensuring organizations stay ahead in an ever-evolving landscape of data and analytics.
Denodo is a leader in data management. The award-winning Denodo Platform is the leading data integration, management, and delivery platform using a logical approach to enable self-service BI, data science, hybrid/multi-cloud data integration, and enterprise data services. Realizing more than 400% ROI and millions of dollars in benefits, Denodo’s customers across large enterprises and mid-market companies in 30+ industries have received payback in less than 6 months.

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