



DATA MODERNIZATION:

The key to unlocking value

Building a future-ready enterprise with
better data management and AI integration

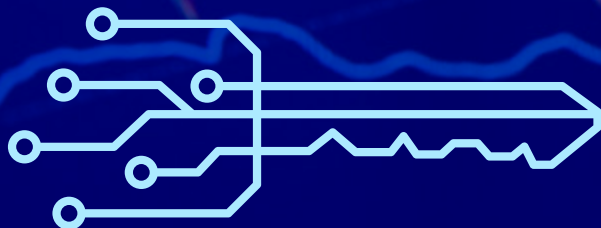
June, 2025

Executives understand data is vital for business competitiveness.

But raw data by itself is of little use. Data products—reports, dashboards, analytics, and algorithms—are the keys that unlock data's value, turning it into practical information that can be the source of valuable insights to support better decision making.

Despite investing millions of dollars, companies nevertheless are failing to get the expected results and returns from these data products. In fact, 92 percent of executives say well-constructed data products are critical to their organization's success.¹ But only 35 percent say they have achieved extensive value from their data product initiatives.²

What are data products?



Clearly, a chasm exists between embracing the concept of data products and actually realizing value from it. The answer to bridging that chasm is data modernization.

Business intelligence (BI) analytics can offer companies enhanced data-driven decision-making. At the same time, the push for artificial intelligence (AI) and generative artificial intelligence (GenAI) is spotlighting the need for a clean and connected data infrastructure.

Achieving both these goals begins with data modernization.

Data products are bespoke software solutions designed to address a specific business problem or advance specific business objectives by converting raw data assets into trusted, timely, ready-to-use, actionable insights for people, AI or machine learning (ML) models, or other data products. They are often built on data analytics platforms such as Informatica, Snowflake, or Databricks, or on a hyperscaler's data product development platform.

¹ "Unlocking value with data products," KPMG, March 2025

² Ibid.

The strategic questions data modernization answers

Data modernization is a strategic approach to the use, governance, operations, and value delivery of data in a modern cloud architecture. It is the foundation that enables you to manage data as a strategic asset and is the steppingstone to better BI, GenAI, and ultimately, the AI-agent-powered autonomous enterprise.

Data modernization aims to help companies affirmatively answer the following critical questions:

Can you consistently deliver value from data and track realized benefits?

Does your data organization and operating model call for the right business accountability for data quality, compliance, and usage?

Do you have a scalable data quality, governance, and certification program across your entire data value chain?

Can you trust your data to fuel AI to solve “needle mover” business problems?

The promise of data modernization

In this paper, we delve into actionable strategies to maximize the value of data through modernization. Our focus is on how to effectively use data to gain a competitive edge, enhance stakeholder value, ensure seamless integration and data quality, and fully leverage AI for better cross-enterprise decision making.



Data is a business concern, not a technology problem

Data modernization requires identifying, cleaning, and transforming data, and upgrading the data infrastructure with modern, cloud-based technologies. This will entail rectifying data silos and fragmentation, poor-quality data, scalability issues, and system integration challenges. And in fact, businesses are already addressing many of these underlying issues.

But more foundationally, data modernization allows companies to effectively manage data as a strategic asset. That shift demands more than technology adjustments. It requires a holistic approach—a fundamental, organization-wide shift that encompasses people, processes, and technology. It requires a product mindset around data leading to the enablement of data products and an operating model that allows you to leverage them.

Here are five steps for effective data modernization:

Step 1 Articulate a clear DAAI strategy with business accountability

Modernizing your data value chain into a strategic asset starts with a clear and compelling data, AI, and analytics (DAAI) strategy.

Business Accountability: Enterprise leaders often believe they have a data strategy when actually they have only IT tactics. For example, they have an initiative to implement a data lake or a cloud-based data warehouse and analysis platform.

A genuine DAAI strategy involves clearly defining how data products can support specific business objectives and their expected impact on the business case. This strategy needs an operating model where business units are accountable for data quality, compliance, and utilization.



Business leaders can't rely solely on IT or data teams to bring about these changes. Rather, they must be actively engaged with data strategy, assigning clear roles and responsibilities and establishing key performance indicators (KPIs) to measure the value derived from data usage.

Data Management Office (DMO): Business leaders don't have to manage the data strategy alone. A DMO can help CIOs or CDOs align data strategy with business goals as well as implement the new target operating model. A DMO can also assist with change management, developing paths to data literacy for the workforce, and fostering data-driven decision-making throughout the organization.

Step 2 Continually measure value across the entire data value chain

Data modernization requires a value-management approach.

ROI Tracking: A key component of data modernization is tracking return on investment (ROI). You must be able to put a value on your data—both as a whole and on each data product you're developing. That includes being able to continually measure ROI across the entire data value chain—not only to determine if data is collected, processed, and analyzed effectively, but also to determine its financial impact—that is value based on its ability to deliver economic benefits in accord with business strategy.



For example, if you're replacing an existing solution—such as manual Excel spreadsheets—you can calculate the productivity savings. If it's a new solution, you can calculate how these new insights support or advance the business objectives described in your data strategy.

Often, organizations separate costs between the producer and consumer cycles. The producer cycle costs—the costs to design and develop a data product, support it, and correct any defects—are relatively easy to track. However, once it's been deployed, value tracing is often neglected. Ensure you are tracking usage and calculating maintenance costs as well as the value the solution is adding, all on an ongoing basis.

Five steps to data modernization *(continued)*



Step 3 Think beyond the business domain

Align data infrastructure initiatives to support business objectives.

Data federation: With a data strategy aligned to business goals and focused on ROI, you can more confidently engage in data infrastructure initiatives to support those objectives. These initiatives generally involve federating data—that is, connecting disparate data sources across the data landscape to act as a single source, streamlining data extraction, transformation, and load (ETL) to ensure data quality, consistency, and accessibility across the enterprise and its portfolio of data products.

Data silos are usually based on business domains—in other words, employee data is siloed from customer data, which is siloed from supply chain data, which is siloed from economic forecast data, and so on. Retailers often have online sales data siloed from brick-and-mortar data.

But divining usable business insights requires access to data from all these domains, and a fragmented data landscape obviously occludes holistic transparency. Maximizing data value, therefore, requires shifting from a domain-centric model to a data-product-centric model.

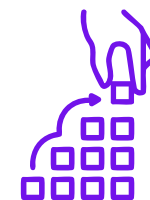
A data product that depends on cross-domain datasets will likely require cross-domain expertise.

The resulting **modern data platform** (MDP) of federated data can dramatically simplify and streamline your data infrastructure and accelerate your advanced data analytics initiatives. It integrates and harmonizes disparate data from across your entire data ecosystem into a common data model, regardless of the complexity or diversity of the underlying environment. It enables data to be managed in a federated way that provides consistent business accountability. And by simplifying and democratizing access to that data, it empowers your data and business professionals to rapidly innovate on their own, with less dependence on IT.

Here, too, organizations often assume that data federation is an IT issue since it involves connecting data sources. While IT will be involved, it's primarily a business realignment. A data product that depends on cross-domain datasets will likely require cross-domain expertise. The engineers responsible for a data lake, for example, will be intimately familiar with the lake's plumbing—the technologies and services used to centralize the data—but they may have little or no experience with or functional understanding of the data itself.

Cross-domain expertise: To avoid misunderstandings and miscommunications, a clear definition of ownership, roles, and responsibilities is needed, as is alignment on nomenclature and definitions. For example, this includes defining terms such as data domain, data product, and data ownership.

Five steps to data modernization *(continued)*



Step 4 Build data foundations for AI, ML and GenAI

Deploying advanced AI capabilities requires a sustainable and scalable data infrastructure.

Deploying advanced AI capabilities is often seen as the endgame for deriving value from data. However, building a sustainable technology and data infrastructure for AI adoption can be complex. Enterprise data architectures are typically not set up to support AI, GenAI, and large language models (LLMs). Moving AI models from proof of concept to production requires a scalable infrastructure that can handle increased data loads for seamless performance and with leading tools and techniques for data integration.

AI-ready infrastructure: While the temptation is to turn to IT to solve the technical challenge, a robust data foundation is about more than technology. Business outcomes should be the starting point for AI initiatives. Your technology approach and decisions (e.g., buy vs. build) require a clear vision, dedicated resources, executive sponsorship, and alignment with business, technology, and risk. Governance and risk management, too, must be built into the technology stack to help ensure AI outputs meet performance, privacy, bias, and trust requirements, even as models are updated.

A data foundation optimized for AI will enable the deployment of a range of capabilities, supported by an operating model that enables you to roll out AI solutions in a repeatable and trusted way, efficiently translating theoretical models into practical business solutions that deliver measurable and tangible benefits. It integrates capabilities in five key areas:

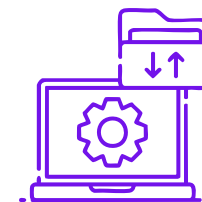
- **Diverse and scalable data ingestion:** You must be able to seamlessly collect data from a diverse set of sources such as IoT devices, web applications, databases, internal sources, and external APIs. You may

need to employ smart data chunking—using AI or natural language processing to determine the most meaningful way to segment data to retain context and relevance—or vectorization for unstructured data such as images.

- **Secure and durable storage:** You must determine the appropriate data storage such as a data lake, data mesh, or data warehouse. You must be able to store both data and metadata to provide transparent AI and insights.
- **Efficient and high-quality data processing:** You'll need a robust and scalable modeling and data processing platform to enrich metadata to enhance AI capabilities.
- **Insights and AI:** You'll need the platform(s) on which to run your AI models and to embed results into core business processes and monitor KPIs. You'll need to foster data literacy within the organization and provide self-service capabilities to enable business users to independently access and analyze data.
- **Actionable business outcomes:** Ultimately, you'll need to be able to support automated decision-making and seamlessly integrate insights into workflows with triggered actions. You'll need feedback loops to support continuous improvements, and value tracking to monitor business outcomes based on data insights.

Capabilities such as these can help you evolve from an organization that uses “out-of-the-box” AI assistants, to one that leverages AI-powered processes, to one with fully autonomous agents working together to automate or enhance entire business processes or functions.

Five steps to data modernization *(continued)*



Step 5

Reimagine data governance

Modernize governance models to address the complexity of today's data ecosystems.

Modern governance objectives: Traditional governance models weren't designed to handle the complexity of today's modern data ecosystems. Modernizing data, therefore, also means modernizing the data governance model. There are eight objectives for a modern governance model:

- **Fairness** — All data models should be equitable and free from bias.
- **Explainability** — AI models, particularly those embedded in third-party solutions, can be black boxes. Effective governance requires that the models you rely on are documented, open for review, and can be understood.
- **Accountability** — Mechanisms should be in place to ensure responsibility across the data lifecycle.
- **Security** — Regardless of the data source, safeguards must be in place to protect against unauthorized access, corruption, or attack.
- **Privacy** — Compliance with data privacy regulations and consumer data usage must be ensured.
- **Safety** — AI must not negatively impact humans, property, or the environment.
- **Data integrity** — Trust must be embedded in models, data quality, and data enrichment processes.
- **Reliability** — AI systems should perform consistently with a defined level of precision.

Here, AI is not only the patient; it's the doctor, too. With robust AI operations in place, AI systems can help with governance and value delivery by handling complexity, improving efficiency, and enhancing outputs, including implementing strong risk and governance frameworks with embedded security and continuous monitoring.

Federated governance: The DMO described in step one can also help here with non-traditional governance—that is, federated governance designed to help ensure value is created in terms of policy, procedure and technical integration standards. Each data product should be fully interoperable with others, and so the DMO can help define which tools or technologies can be used. It can define the standard for the metadata catalog. It can provide guiding principles for the handshake mechanisms and RESTful APIs used to connect one system to another, and for the identity and access management systems, protocols, and procedures used to provide secure access to them.

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How KPMG can help

KPMG LLP (KPMG) offers a range of data modernization services designed to help today's enterprises leverage their data as a strategic asset:

DAAI strategy and value — We can help you develop an enterprise data strategy and value management approach for your data value chain aligned with business objectives. We can help you evolve your data management organizations, define data products and marketplaces, and develop data literacy pathways to help your workforce use data products to make better, data-driven decisions.

Data for Business Insights — We can help you derive actionable insights from data through data visualization tools, predictive analytics models, ML algorithms, and GenAI solutions to help drive business growth and innovation.

Powered Data Management — We can help you integrate disparate data sources across the data landscape through streamlining data ETL to help achieve data consistency and accessibility across multi-cloud data ecosystems, integrations, and enterprise consumption.

Data Foundation for AI — We can help you establish a strong data foundation for AI through data architecture, curated data products, GenAI agents, retrieval augmented generation (RAG), vector storage, grounding LLMs, data exploration, and enablement of robust AI operations capabilities.

Trusted Data — We can help you strengthen data security and privacy measures through robust data protection controls, privacy engineering techniques, and access management protocols. We can help you comply with relevant data privacy regulations such as GDPR and CCPA, and be better prepared to handle new AI regulations as they appear.

We can help you strengthen data security and privacy measures through robust data protection controls, privacy engineering techniques, and access management protocols.

Why KPMG

KPMG is an industry leader in data modernization services, recognized by IDC for experience and innovation.³

IDC MarketScape Worldwide Data Modernization Services 2024



We draw from our deep bench of in-house talent to form teams that can cover all the bases required for a successful and sustainable data modernization project, including:

Expertise:

- Teams of Ph.D.-level data scientists, technology professionals with deep experience in the design, development and training of AI and ML models
- Data analytics professionals, including our team of data visualization professionals, to help us extract and communicate the insights you need

Technology proficiency:

- Software developers skilled in modern methodologies including Agile and DevSecOps
- Engineers with specific knowledge and experience deploying solutions on all leading cloud platforms
- Design and user experience (UX) professionals to help create solutions that are intuitive and easy to use

Comprehensive services: Governance, risk and compliance professionals, including legal professionals, to help identify, understand and manage key risks associated with AI or analytics solutions

Change management: Organizational change management professionals to help smooth the transformation across your entire organization

³ IDC MarketScape: Worldwide Data Modernization Services 2024 Vendor Assessment (doc #US51234424), September 2024

Why KPMG *continued*

Data modernization accelerators

Our teams are armed with a portfolio of accelerators designed to help jumpstart your journey to better data value:

Framework accelerators — Standard service offerings to establish a strategy informed by leading practices, including data governance, security, privacy, and change management.

Data accelerators — Configurable, extensible, data-centric assets with industry-specific data models, master data, AI-enabled data products, connectors, and pipelines.

Functional accelerators — End-to-end business capability starting blocks that help to address needs across back, middle, and front office with insights for intelligent forecasting, anomaly detection, and more.

Technology accelerators — Assets that target the leading-edge needs of technical teams to power the enterprise through cloud-native capabilities including ERP migration, cloud modernization, microservices, and GenAI.

Industry alliances

With dozens of technology leaders on our list of alliances, you'd be hard pressed to find one that's missing. By training and certifying our technology professionals, they enable us to deliver solutions across all leading platforms with true competence. They can give you direct access to internal resources to help solve pressing challenges, and ahead-of-the-curve insights that can put you in front of the pack.

Leading data modernization solutions

We've pioneered some of the most advanced technology solutions designed to accelerate your data modernization efforts.

KPMG MDP is the cornerstone of a modern data-driven enterprise. It's a scalable, cloud-native data platform that unites the best of human and technology to uncover hidden insights, discover new pathways and empower you to move at the speed of business.

KPMG Ignite is our patented, incredibly powerful, and easy-to-use AI solution that combines a feature-rich AI development platform with a robust portfolio of prebuilt, industry-tested AI-enabled solutions, all backed by our deep industry and domain expertise.

KPMG Signals is our active listening platform that continuously harvests both structured and unstructured data from more than 250 public and private sources, and transforms that data into over 100,000 signals that can give you unprecedented, ML-based insights into market dynamics in real time.

KPMG One Data Platform is a cost-efficient solution to help organizations manage and extract value from their data. It helps to simplify the complexities of data modernization with pre-built technical and functional assets, including standard configurations and best practices, and pre-configured ETL pipelines for leading data sources.

By leveraging KPMG's comprehensive solutions, businesses can embark on a successful data modernization journey, ensuring robust data management, strategic utilization, and transformative outcomes.

Contact us

Accelerate to data modernization

KPMG data professionals will immerse themselves in your organization, applying industry knowledge, powerful solutions, and innovative technology to drive innovation, deliver value, and achieve sustainable results.



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