



Unlocking value with data products

How executives can invest with confidence and create a competitive advantage

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Reimagining industrial manufacturing through data products

The industrial manufacturing (IM) sector is entering a new era—one defined not only by automation and robotics, but by the strategic use of data as a core business asset. As manufacturers face mounting pressure to increase efficiency, reduce emissions, and build supply chain resilience, data products are emerging as a powerful lever for transformation. These curated, reusable data assets—designed to deliver high-fidelity insights for specific business purposes—are reshaping how manufacturers design, produce, and deliver goods.

According to KPMG’s 2025 report, industrial manufacturers are among the least likely to report extensive value realization from their data product initiatives. While 80% of IM executives express confidence in the potential of data products, only a small fraction have moved beyond the “crawl” or “walk” stages of maturity. This lag is attributed to persistent challenges around data quality, accessibility, and ownership—issues that are compounded by the sector’s complex, asset-heavy environments and legacy systems.

Yet the opportunity is immense. The U.S. Department of Energy’s Industrial Technologies Office (ITO) emphasizes that digitalization and data-driven innovation are essential to achieving energy efficiency and emissions reduction goals across the manufacturing sector¹. The DOE’s FY25–28 Enterprise Data Strategy further underscores the importance of federated governance, AI-enabled analytics, and workforce development to unlock the full value of industrial data².

Market Examples:

- **Siemens** has pioneered the use of digital twins—data products that mirror physical assets in real time—to optimize factory operations, reduce downtime, and simulate production scenarios. These digital twins integrate sensor data, machine learning, and simulation models to support predictive maintenance and agile manufacturing.³

¹ U.S. Department of Energy. (n.d.). Energy analysis, data, and reports. Office of Energy Efficiency & Renewable Energy.

² U.S. Department of Energy. (2025). FY25–28 Enterprise Data Strategy.

³ Siemens. (2025). Digital twin. Siemens Software.

⁴ Bosch SDS. (2025). AI in manufacturing: Unlocking efficiency, precision, and innovation. Bosch Software and Digital Solutions.

⁵ Marr, B. (2024, December 6). 8 game-changing manufacturing trends that will define 2025. Forbes.

- **Bosch** has developed a suite of AI-powered data products within its Industry 4.0 framework. These include energy monitoring dashboards, quality prediction models, and supply chain visibility tools—all designed to improve operational excellence and reduce waste.⁴

These examples reflect a broader trend identified by Forbes: in 2025, manufacturers are doubling down on generative AI, smart robotics, and AI-first cultures to reimagine design, production, and workforce development⁵. Data products are the connective tissue that enables these technologies to deliver value—by ensuring that insights are trustworthy, accessible, and actionable across the enterprise.

However, the KPMG report reveals that many IM companies firms still treat data as a byproduct of operations rather than a strategic asset. To shift this paradigm, manufacturers must:

- **Establish cross-functional data ownership** that bridges IT and operations.
- **Invest in data literacy and upskilling** to empower frontline workers and engineers.
- **Quantify the ROI of data products** through clear metrics tied to production, quality, and sustainability outcomes.

In this context, data products are not just enablers of efficiency—they are catalysts for innovation, resilience, and competitive advantage. By embedding data product thinking into their digital transformation strategies, industrial manufacturers can unlock new pathways to growth and sustainability in an increasingly volatile global landscape.

This paper explores how organizations can close the gap between data potential and data performance—building a foundation for smarter, faster, and more sustainable manufacturing.



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Introduction

Companies spend billions on data ecosystems, assets, and services every year⁴ to shorten time to insights, increase productivity, and increase margins. Even when data investments underperform expectations, leaders remain convinced: The road to growth begins with data—and often, data products.

A data product is a collection of data assets that have been taken from raw to curated status, for a specific business purpose. Built for reuse and actively managed from definition through retirement by the owner, data products power solutions and dashboards with high fidelity, trusted insights. The more that a data product can be reused or monetized, the more it's worth. Data products that can simply and reliably create value for a wide impact radius are the most prized of all.

For most organizations, mining value is harder than it sounds, and it requires a new business and IT interaction model. To understand more about how companies in different industries are creating, managing, and capturing value from their data products, KPMG LLP surveyed 250 executives across consumer goods and retail (C&R); energy; financial services; healthcare and life sciences (HCLS); manufacturing; and technology, media, and telecommunications (TMT). We asked detailed questions about their data product practices and life cycle, centering around value levers such as competitive advantage, speed to market, and regulatory compliance. We also inquired about their collaboration models and company culture, and the challenges they face around data quality, governance, and ease of acquisition.

What we learned is that only 35 percent of respondents have achieved extensive value from their data product initiatives. Success often correlates to industry: We found that companies in C&R and financial services, for example, achieve more value from their data products than

those in other industries such as manufacturing. Regardless of industry, companies that earn the best returns from their data product investments are the ones that use them for more than just increasing efficiency or workforce refactoring. Instead, these data product leaders are using them in transformational ways so they can win in their respective markets.

With leadership's support, the data product owner can drive the culture change needed to nurture data as an evolving value driver, translating data reform initiatives into worthwhile projects that will foster meaningful organizational change. The role is about embracing data ownership; deepening collaboration between IT, the business, and other stakeholders; creating an enterprise-level data standard under which trust, reliability, and quality are activated; and building data products, under permanent partnership with IT, that are available to anyone in the data and analytics community to explore and use.

Building high-utility, high-value data products is not easy. By taking a holistic approach to the data value chain and rallying multi-function teams towards data product development and care, executives can invest with confidence, creating a high value catalog for the entire organization to share. Here, we identify data product leaders, intermediates, and laggards; describe their differences, challenges, and priorities; and share how companies can build more impactful data products to create a competitive advantage.



of respondents have achieved extensive value from their data product initiatives.

⁴ "Big Data Technology Market Size, Share & Industry Analysis," Fortune Business Insights, December 30, 2024.



Key survey findings

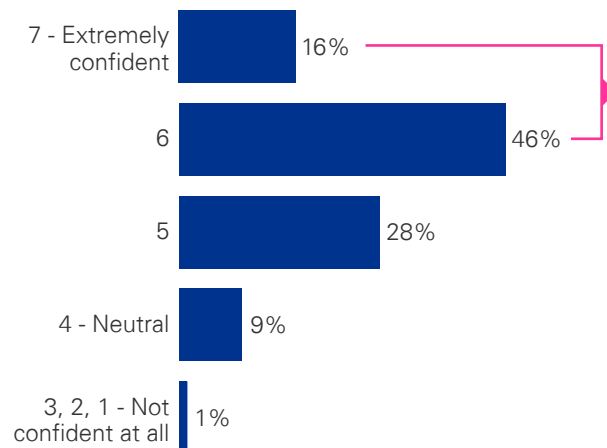
Companies across all sectors believe in data products' potential: 92 percent of executives surveyed say well-constructed data products are critical to their organizations' success over the next three years. Another 90 percent believe their data product investments will generate significant value; the same percentage plan to increase their data product budgets by at least 10 percent. Across industries, respondents from C&R, energy, and financial services are the most confident their data product investments will create value (92 percent), followed closely by HCLS and TMT (90 percent). Manufacturing executives are mostly confident (80 percent).

Operational excellence, data-driven decision support, and shortened time to insights are the main areas in which most sectors anticipate unlocking the most value. Leaders across all industries shared these opinions—even if their own organization hasn't yet achieved the ROI they want and expect. Across the industries we surveyed, we found that respondents from C&R, followed by financial services and HCLS, are the most likely to report realizing value from their data product initiatives. TMT and energy respondents report realizing moderate value, with manufacturing respondents being least likely to realize significant value.

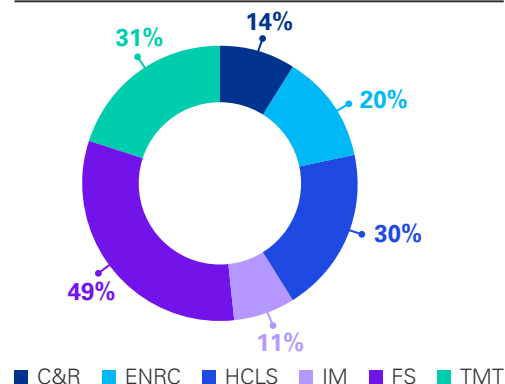


of respondents across all sectors say well-constructed data products are critical to their organizations' success.

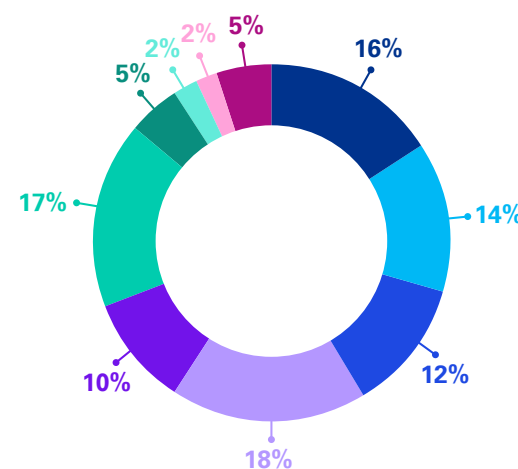
Respondents who say management/senior leadership is confident that data product investments will create value



Confident respondents by sector



Levers where respondents anticipate unlocking value from data products



Value levers:

- Operational excellence
- Speed to market
- Competitive advantage
- Shortened time to insights
- New revenue generation
- Data-driven decision Support
- Technology simplification
- Support regulatory compliance
- Workforce refactoring
- Cost reduction

Regardless of industry, clear trends emerged when we compared the priorities and data management practices of respondents:

Operational excellence and data-driven decision support remain priorities for all respondents

Key differences emerged around value lever prioritization, with data product leaders citing operational excellence as their primary value lever. Data product laggards, on the other hand, were more likely to select data-driven decision support as their top value lever. C&R, energy, HCLS, and TMT are more likely to cite operational excellence as their premier value lever; financial services and manufacturing are more likely to prioritize data-driven decision support—despite financial services’ categorization as a leader on data products.

Leaders are prioritizing revenue growth

Leaders are considering the ways their data products can increase revenue over the next 12 to 18 months. Growth is a more important key performance indicator for leaders (53 percent) to measure value as compared to intermediates (45 percent) and laggards (41 percent). Whether they have accomplished this goal is another matter: Only one in three data product leaders self-report revenue growth as a competitive edge provided by data products; intermediates (23 percent) and laggards (14 percent) are far less likely to report revenue increases from their use of data products.

From an industry perspective, C&R respondents appear most likely to already use data products to create new revenue paths. However, other leader industries are catching up quickly: New revenue generation is the second-most desired value lever for financial services over the next 12 to 18 months, for example. Energy and manufacturing, two industries that are more likely to lag in terms of data product readiness and value capture, are less likely to cite revenue growth as a value lever. Manufacturing respondents are particularly skeptical that data products will create high ROI: Only 44 percent of senior leaders in manufacturing express confidence that data products will create value.

We asked respondents to self-assess data product readiness:

Crawl

The organization is in the initial phase of exploring data products. They are deliberating on the possibilities, scoping requirements, and planning the strategic roadmap for integrating data products into their processes, but have not yet started the practical implementation.

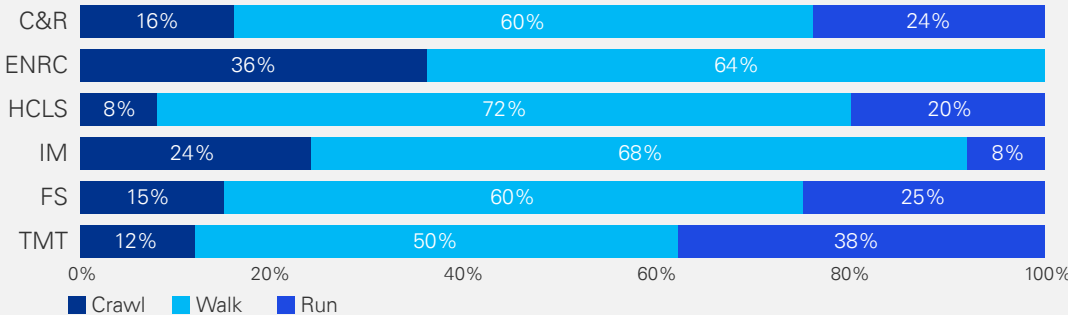
Walk

The organization actively pursuing data product development and integration. They have moved past planning and are in the process of prioritizing which data products to pursue.

Run

The organization has implemented data products, conducted proof-of-concept tests, and established successful use cases. They are fully operational with data products and looking forward to reaping the benefits of their investment.

Respondent self-assessments of data product readiness by industry



Leaders feel more confident about data readiness

Leaders show a significantly higher level of data readiness at 75 percent, compared to only 32 percent of intermediates and 11 percent of laggards. The leaders are prioritizing data operations, financial resources, and tech infrastructure, along with training and development. HCLS, C&R and financial services are more likely to report being fully ready in preparing their data and infrastructure for the use of data products.

Laggards, including nearly one-third of energy and manufacturing respondents, are more likely to cite concerns around data quality, accessibility, and data understanding. However, there are also cases where high readiness still pairs with ongoing concerns on data quality and literacy, as noted in financial services respondents.

TMT responses are outliers

TMT executives are the most ready of all industry respondents to build high-impact data products: 38 percent reported advanced progress in development and utilization. They are also likely to report a high ROI on their data product investments (70 percent) and senior leadership is mostly sold on their value (62 percent). Despite these positive signs, TMT lags C&R, HCLS, and financial services when it comes to scaling data product initiatives. Lack of resources appears to be the source of the problem: TMT executives are the only respondents who reported limited funding as hindering successful use of data products. This is likely because TMT companies are prioritizing investments in products, research, and development. However, TMT respondents also indicated they are aware of the importance of data products and indicated that securing funding is a key next step.

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Barriers to success

The goal of a high-value data product is to enable organizations to make smarter decisions faster, drive innovation, increase efficiency, and win in the market. However, organizations should not automatically equate data product quality solely with technology renovation. The target operating model for data products should instead inspire thoughtful collaboration while helping ensure those who are closest to the data are empowered to own and act. Our survey dug further into the most common people, process, and technology obstacles to realizing value from data product investments.

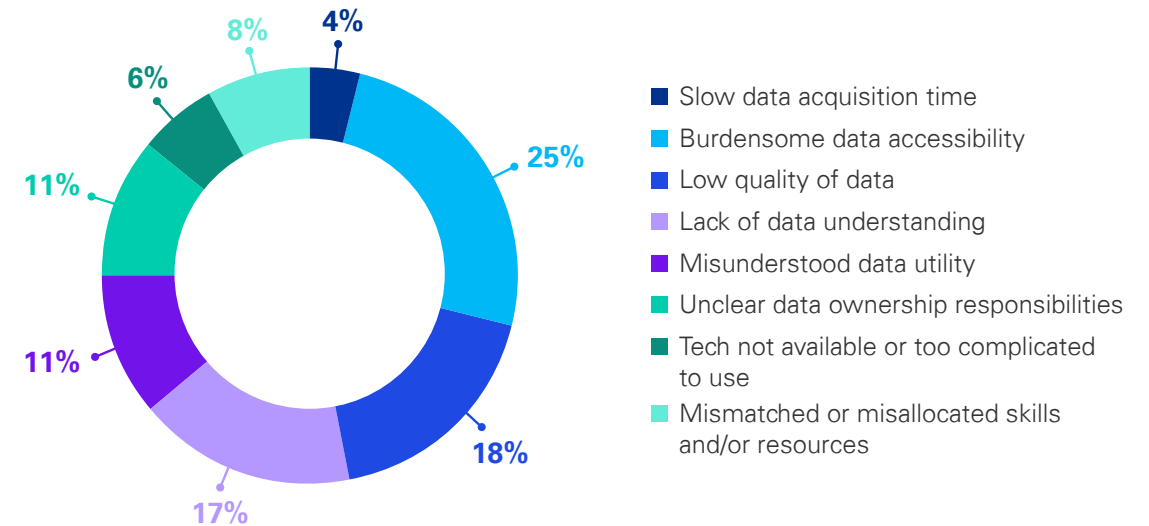
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Data modernization and governance challenge all sectors

Data modernization is defined as the strategic approach for innovative use, accessibility, governance, operations, and value delivery of data in a modern cloud architecture. Across industries and maturities, our survey found that poor accessibility, data quality, and understanding data context challenge many respondent organizations. To address these issues, all respondents are prioritizing development of a data product strategy in near-equal measure.

However, a closer look reveals differences between leaders, intermediates, and laggards when it comes to governance, employee skills, and consensus-building. Leaders and intermediates are most likely to prioritize data governance (53 percent and 52 percent, respectively), while laggards trail behind (42 percent). A similar gap between leaders and laggards also emerged in talent acquisition (44 percent versus 32 percent). Consensus building appears to be less of an issue for leaders when compared to intermediates and laggards, indicating executives at leader organizations are largely in agreement about data product policies and standards.

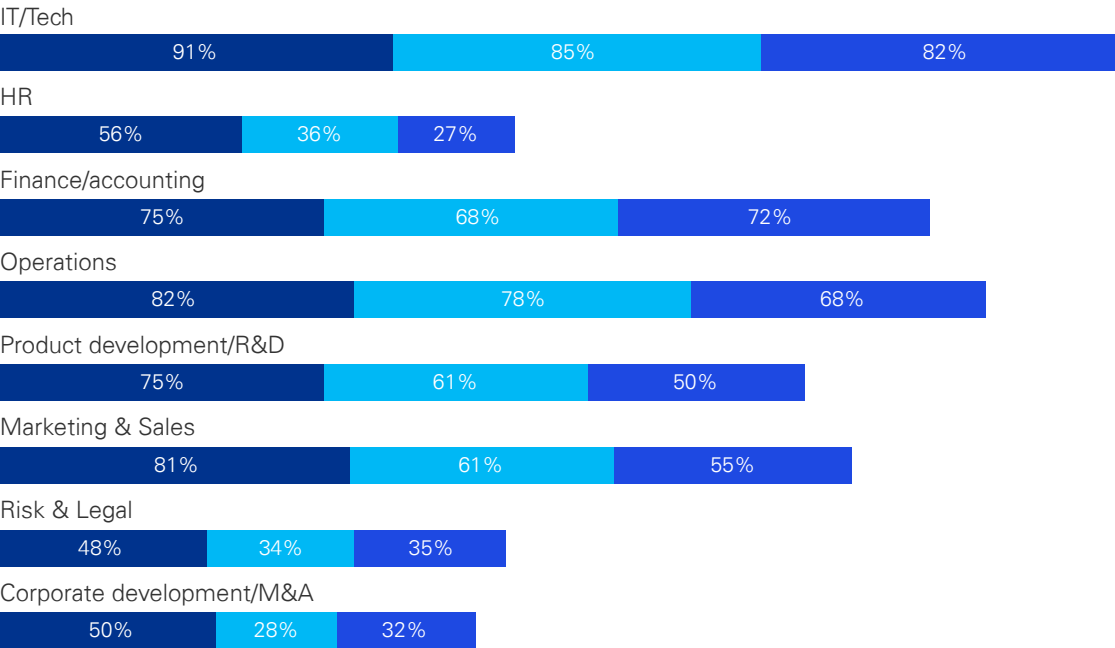
The top three challenges respondents face with data assets



Ambiguous data ownership

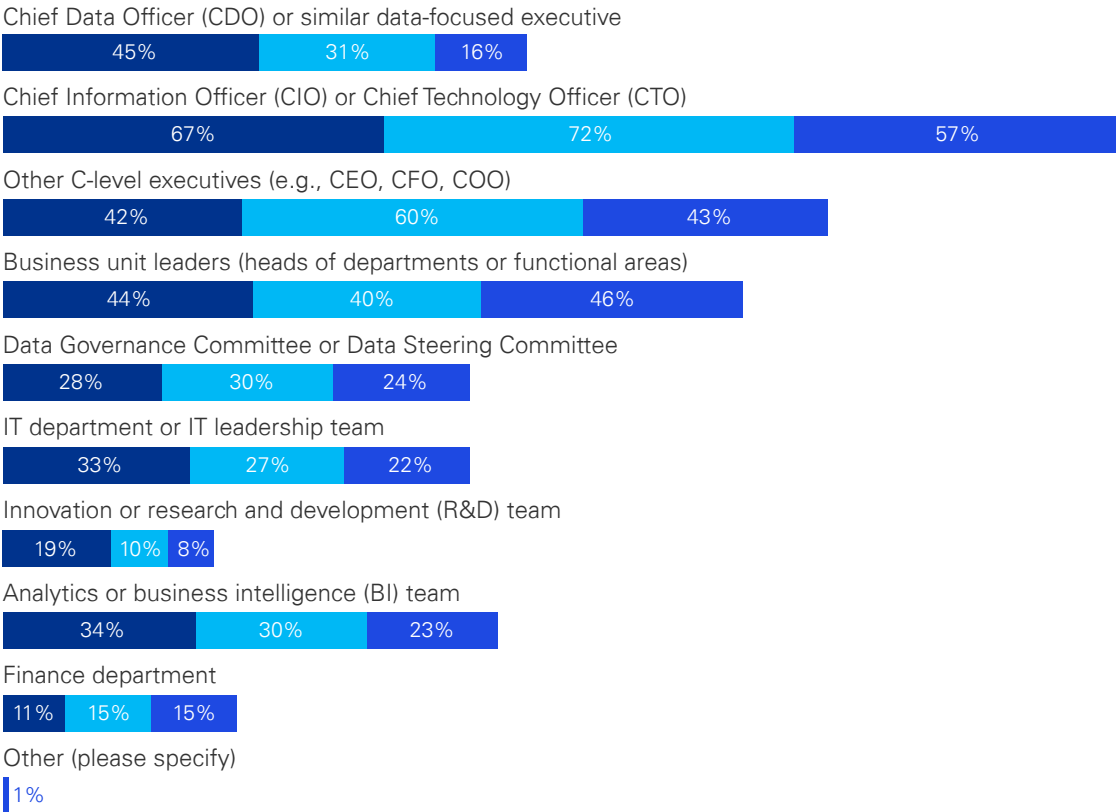
Ambiguous data ownership is a particularly thorny challenge for organizations in every industry: 60 percent of respondents centralize data product ownership within IT, reflecting the interaction gap between the employees who source and manage data and the people who use it to make decisions. CIOs, for example, are far more likely than their business unit counterparts to sponsor data product initiatives, despite all business units relying on data products to make decisions and generate value. This is true even in leader organizations.

What functions within your organization use data products?



■ Leaders ■ Intermediates ■ Laggards

Who typically sponsors the data product initiatives within your organization?



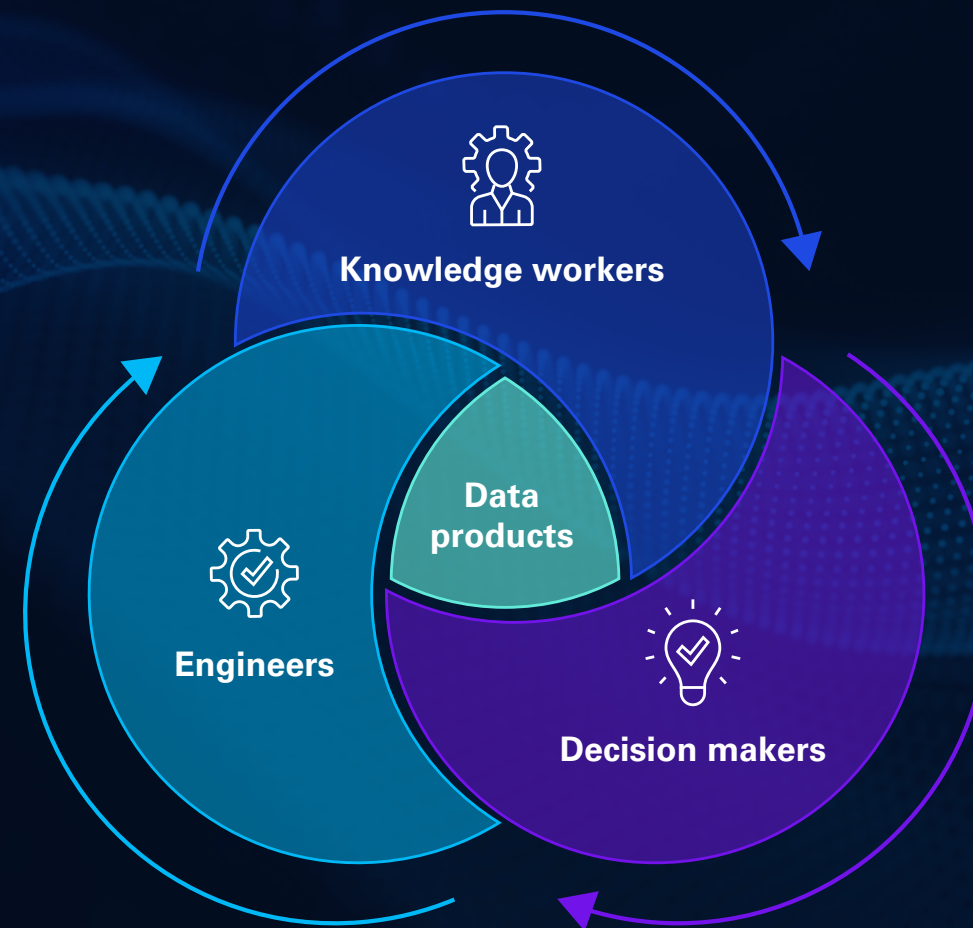
Closing the collaboration gap

All parties want high fidelity, expedited access to trusted data sources, but as companies progress with their data transformation journey, systemic gaps between fulfilling business needs and swift data acquisition resurface. Operational and interaction challenges for business and IT often trace back to a lack of shared understanding, project cost concerns, and over-correction on governance measures that inhibit innovation.

Our study found that only 55 percent of executives believe that data management is a collaborative effort co-owned and managed by IT and the business. Identifying the ideal RACI and distribution of activities is key to data modernization, yet most companies we surveyed remain stuck in a data product operating model of the past, with ownership centralized in IT. This disconnect between IT and other business functions is reflected in our findings. Whereas 56 percent of IT respondents reported mature data product operations, only 34 percent of finance respondents agreed. Risk and corporate development executives were even less likely to report mature data product capabilities, at 24 percent and 28 percent, respectively.

55%

55% of executives surveyed believe data management is a collaborative effort co-owned and managed by IT and the business.





How to build high-value, high-utility data products

Data product ownership can be the tipping point for value creation. Business functions take an elevated role, taking responsibility for critical data elements, context, usage, and value within their domain. Like any good product manager, whose role is to design, manage, and champion their assets, the data product owner's goal is to define and elevate the value of their data, the utility of their data products, and partner with others to help ensure easy availability for the good of the entire organization. To build a high-value, high-utility data product:

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1 Inventory your data assets and experts

Use generative artificial intelligence (GenAI) and machine learning (ML) to gather, consolidate, and analyze information about your data assets at the portfolio level. A comprehensive data portfolio can surface important insights on utility, business context, trust indicators, and technical information. Examples can range from consumer histories to business rules to data lineage. This inventorying effort includes identifying duplication, complexity, risk, and the solutions and use cases fed by the data assets.

This inventory yields insights into the organization's data preparedness; gaps in information, skills, and knowledge; and areas and people that have specific strength in data development and management. From these foundations, organizations can begin to target priority data product candidates and champions for the data modernization mission.



2 Quantify the data value chain

Many organizations grossly underestimate the operational cost of data products or fail to properly quantify data product value against clear outcomes. Organizations shouldn't create a data product simply because it's possible. If the data products don't deliver enough business value, or if they fail to be embraced by the business stakeholders they were designed for, they are not worth the expense to develop and sustain.

A clear, repeatable, and well-understood rubric can guide more informed decision-making on data investment priorities while solidifying business and IT understanding of the impact radius. AI uses knowledge graphs to quickly and accurately quantify value, and based on these criteria and calculations, organizations can estimate gains and costs. That creates

transparency around development time, resource needs, and priorities, helping retain the original value proposition.

The utility, viability, and value of data products should be weighed against "good enough" traditional data pipelines and sourcing. With a comprehensive understanding of your data portfolio, scored for complexity and value, a clear understanding will emerge on the resources required to develop those targets into data products. Companies can then estimate whether a proposed data product will give them the return on investment needed to proceed.

The data value chain is the quantitative measurement of value across these steps. This structured approach helps organizations systematically derive value from their data assets, helping ensure that data is collected and processed, analyzed, and utilized effectively to drive business decisions and economic benefits.

Step 1 Discovery

Establish clear objectives, identify relevant data sources, and profile the data to confirm it is fit for purpose.

Step 2 Acquisition and ingestion

Collect and integrate data from various sources, which includes data modeling and quality assessments, to prioritize data extraction.

Step 3 Processing

Cleanse and consolidate data to make it usable for analysis.

Step 4 Analytics and application

Extract actionable insights and create data visualizations, using advanced analytics like AI and machine learning, to help ensure insights are accessible and understandable.

Step 5 Monetization

Determine the pricing, manage the demand for data products, and help ensure insights are distributed internally and externally to create economic value.

Step 6 Operations and governance

Maintain high data quality, manage metadata, and implement privacy controls to help ensure compliance and data security.

3 Confirm data portfolio utility and prune where necessary

Help ensure you funnel data consumers to the highest fidelity assets and products. Once you've assembled your data portfolio, creating metadata in an AI-enabled catalog helps re-confirm data utility. Weigh your data assets' performance against a value threshold that will help your organization decide whether they need maintenance or retirement, using data minimization best practices to help ensure you only collect, store, and maintain what is absolutely necessary. This is also an opportunity for learning and development because it enables you to reinforce guidance around data literacy, context, and appropriate use.

4 Shape behavior, self-service, and a marketplace mindset

As new data assets are curated and the portfolio is optimized, advance and elevate the data product owners and stewards during reporting and analytics cycles. Center business and IT personas on a collaboration hub where they can 'shop' for the data products they need to assemble new solutions—imagine a virtual marketplace where users can instantly discover, understand, and evaluate the utility of an organization's data products. Then, encourage rating, idea sharing, and discussion via social share to surface high-impact use cases and value creation. Use AI to automate social data gathering and to further understand and confirm utility.

5 Prioritize value measurement

Data products can be expensive to build and maintain, and are only as worthwhile as the value they create. Evaluate the potential for value creation during curation and measure adoption over time, using AI to surface the metadata that will support critical decisions on utility, refreshes, and retirement. Incremental adoption is one clear value measure that data products are working; adoption tied to a wide impact perimeter is another. Both are valuable to the enterprise.





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Accelerating your data modernization journey

Macro forces are pressuring businesses to rethink their business and operating models to remain competitive. Data and analytics are foundational to solving the complex business challenges they face. Trapping these powerful data resources in organizational dysfunction is no longer an option for those hoping to mine and apply their data to new kinds of value creation.

Sixty percent of respondents to the KPMG survey said their organizations are at the “walking” stage with respect to the development/use of data products. To drive more impact, find out

what is missing. Learn why or why not your people are using your data to generate insights, or if they are using the new system you implemented. If you are not spurring them to action with a high-impact value proposition, step back to evaluate your data modernization progress. With the right approach, you can create more value—and clear the hurdles that are preventing your organization from running.



How KPMG can help

KPMG is here to help. We're harnessing the power of data to elevate the value you can achieve from making better decisions and achieving stronger business outcomes. We can help you build a robust data strategy that joins the needs of your business with the support of a modern data architecture.

Build data products that rely on agile data management systems, elevated data quality, and solid operational foundations. We'll help you establish federated data ownership practices and data models optimized for specific domains and lines of business.

Anticipate and adapt to the wide-ranging impacts AI can have on your data and organization, including budgets and data controls, secure data practices, and cloud-native architectures.

In 2024, KPMG was named a leader in data modernization services by IDC. With our digital transformation experience, advanced technology knowledge, and respected data practitioners, we provide CDOs and data leaders with solutions designed to keep you moving forward with confidence. We can help you:

Harness the power of data ethically and responsibly with trusted data principles and governance models for managing risk.

Create a consumer lifecycle approach that incorporates self-service models, AI assistants and agents, and builds a foundation for enterprise insights.

Operate and manage your data infrastructure with integrated frameworks that support access to a broad range of data sources and make analytics faster with less friction.





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Matteo Colombo serves as the Global Leader for Digital Technologies at KPMG. In this pivotal role, he spearheads the growth, transformation, and innovation across KPMG's Digital Foundation and the global Centers of Excellence for Cloud, Data, and AI. Matteo plays an instrumental role in shaping the use of technology in KPMG's collective strategy and ensuring its effective implementation in local markets. Additionally, he manages relationships with KPMG's key strategic technology partners. Matteo's profound expertise encompasses both strategy and technology, with a particular emphasis on emerging trends that drive growth and innovation for clients and partners. He is a staunch advocate for the effective and ethical use of AI. With over twenty years of experience, Matteo has adeptly guided large enterprises in harnessing cutting-edge technologies to achieve significant, large-scale transformations. As a seasoned technologist, Matteo excels in advisory roles for large and strategic clients, particularly within the Technology, Telecommunications, and Capital Markets industries. In his current position, he is also responsible for spearheading Data Modernization efforts within the US market.



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Danielle is a Principal in KPMG Advisory for Data Modernization, as well as an offerings leader for Enterprise Data Strategy, Data Products, Data Marketplaces, Data Value Chain & Chief Data Office Advisory, positioning data and analytics services with clients and expanding data-related alliances. Danielle is an enterprise technology executive and data integration strategist driving high-performance agile teams to deliver business value. Her career emphasis over the last 20+ years is application development, holistic data management, next-generation analytics, enterprise architecture, AI/ML innovation and cloud modernization. She delivers client engagements across all sectors. Danielle's experience as a software engineer & CDO has been a driver for hybrid success throughout her career progression. Her passion for advancing data accessibility and collaboration at scale is based on unifying business and IS to work in union on strategic data initiatives. Danielle is an advocate for privacy enhancing technologies, enterprise data strategy and innovation across the entire data value chain.



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Gabriel is a Director in the KPMG Advisory Data Organization and a product manager specializing enterprise data ecosystems and data products. He is dedicated to enhancing the value of data through finding novel integrations of data, technology, and work-approaches. The most recent 10 years of his career have focused on accomplishing this through guiding the design, development, and use of enterprise scale data meshes and fit-for-purpose operating models. His work has emphasized data democratization, trust in data, self-service experiences, and optimized data management lifecycles.

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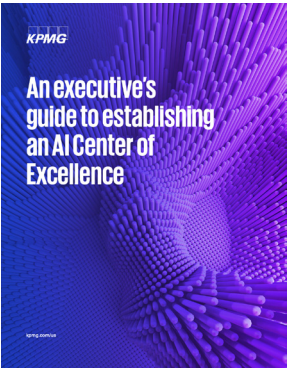
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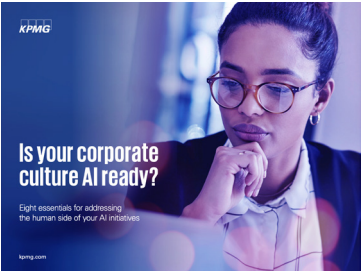
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