



MANAGING DATA IN AN AI-DRIVEN WORLD

How to increase time-to-value

Companies worldwide recognize the vast potential of AI, but the challenge lies in delivering meaningful business value while balancing required investments. High-impact AI applications are often business-critical, making data quality nonnegotiable and elevating the need for robust data governance. This presents unique difficulties, particularly in industries like telecom, where data is both a strategic asset and a competitive differentiator. In this Viewpoint, we examine how companies can implement effective governance frameworks to maximize the value of their data and unlock AI's potential more quickly.

AUTHORS

Joeri Samyn
Michael Majster
Maureen Kerr
Dario Garante
Richard Eagar
Marco Riva
Patrick Vermaak
Nele Vande Velde
Larry van Wallendael

AI'S PROMISE VS. REALITY: THE DATA CHALLENGE

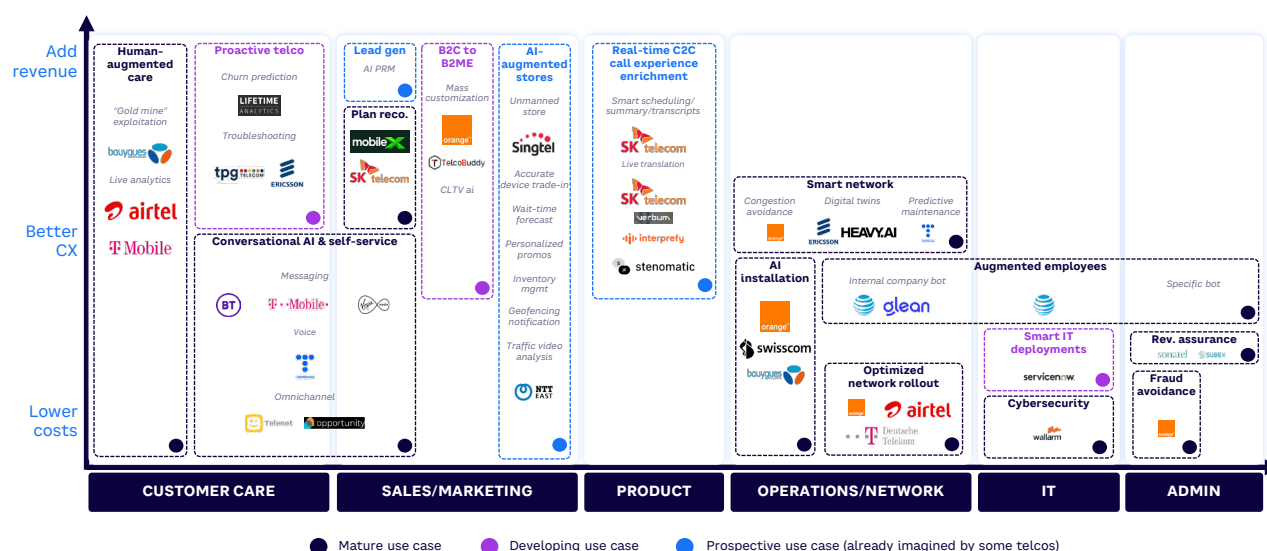
Two and a half years after the launch of ChatGPT ignited the generative AI boom, companies across industries are racing to implement AI-driven solutions, ranging from efficiency improvements to groundbreaking new business models (see the Arthur D. Little [ADL] Viewpoint “[Navigating AI: Challenging the North Star](#)”). Telecom operators, in particular, are actively exploring AI applications, from AI-powered customer usage plans (like those from Mobile X) to large-scale AI investments aimed at reshaping entire business models (e.g., Iliad's European AI strategy). Many use cases already exist or are being rolled out, while others are in development or being considered for the future (see Figure 1).

Tangible, large-scale business impact remains elusive, despite widespread adoption and aggressive marketing of AI capabilities. While there is an abundance of AI use cases, they vary widely in terms of their value-creation potential and the level of effort and investment needed to implement them. However, the gap between AI's potential and actual business transformation stems from a more fundamental issue: data quality.

While companies generate and store vast amounts of data, much of it is poorly structured, inconsistent, or difficult to access.

AI models demand exceptionally high data quality, far beyond what is required for traditional business intelligence. Even small errors in training data can lead to incorrect or unreliable outcomes and operational failures. Faulty data is the first cause of “hallucinations” by these models, especially when training more advanced AI models (e.g., large language models). Because AI models are usually trained on very large datasets, outcomes are typically hard to link back to specific source data points. Errors might be acceptable in AI-generated marketing or promotional materials later checked by humans, but they are unacceptable for many higher-value use cases that may involve direct AI-based operational control or customer interactions. These issues often lead to early abandonment or a lack of trust in these types of solutions, resulting in unreached potential.

Figure 1. AI use cases for telcos



Source: Arthur D. Little

The effort needed to clean up and restructure vast amounts of data can be very significant, leading to slow progress and a backlog of unqualified AI use cases. And the challenge isn't just cleaning up data; it's building a long-term strategy for AI-ready data governance. Just as crude oil must be refined before it delivers value, data must first be structured, validated, and continuously monitored. Companies must move beyond one-off cleanup efforts and instead must embed robust data governance frameworks that prioritize processes, technology, and accountability to establish fit-for-purpose data governance capable of monitoring the quality of available data. Without these steps, AI's transformative potential will remain just that — potential, rather than actual.

AI'S ROLE IN DATA MANAGEMENT & GOVERNANCE

While often used interchangeably, data management and data governance serve different purposes and operate at different levels of the data lifecycle:

- **Data management** is primarily concerned with the technical and operational aspects of handling data, encompassing processes such as data collection, storage, integration, and security.
- **Data governance** is a more strategic and policy-driven framework that defines the rules, roles, and responsibilities related to an organization's data assets. Governance ensures that data management is consistent across the organization, data ownership is properly allocated, and regulatory requirements are adhered to.

Ultimately, the two functions are interconnected, and by integrating both disciplines, organizations can ensure their data is not only well-managed but also aligned with business goals and regulatory requirements.

Getting a better handle on the links between the range of potential AI use cases and the input data they require is a good starting point for focusing data management and governance efforts. Figure 2 shows an example of data pools for a telecom company in the columns and how these data pools link to the different AI use case categories presented earlier. Of course, going into detail for each use case gives an organization a more granular view of the required data points.

Figure 2. Links between data pools and AI use cases

		DATA PERSPECTIVE							
		Operational data — OSS		Customer & product data — BSS					
		Network data	Operations & field service data	Customer data	Product & service data	Partner & ecosystem data	Competitive & market data	Financial data	Regulatory & compliance data
USE CASE PERSPECTIVE	Proactive telco	✓		✓					
	Conversational AI & self-service		✓	✓	✓				
	Plan recommendation			✓	✓			✓	
	Lead gen			✓	✓	✓			
	Real-time C2C call experience			✓	✓				
	Optimized network rollout	✓	✓	✓		✓	✓		
	Augmented employees		✓	✓					
	Cybersecurity	✓	✓	✓		✓			✓
	Fraud avoidance			✓				✓	✓

■ Customer care
 ■ Sales/marketing
 ■ Product
 ■ Operations/network
 ■ IT
 ■ Admin

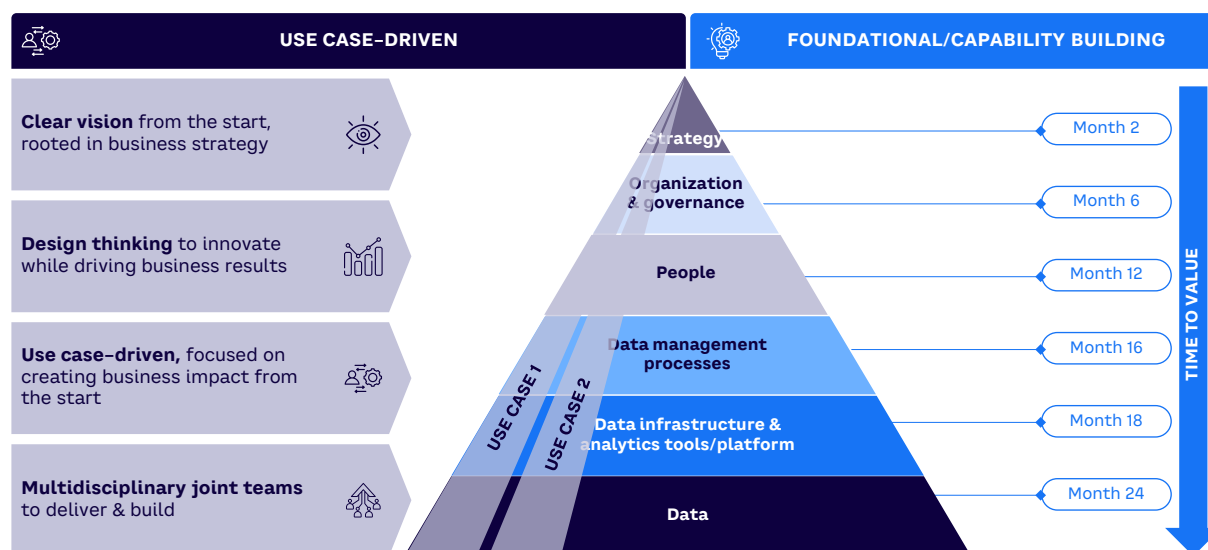
OSS = operational support system; BSS = business support system
Source: Arthur D. Little

The approach Deutsche Telekom used to roll out its fiber network provides a good example of how aggregating multiple source datasets feeds an AI application. Deutsche Telekom uses AI to optimize layout routes for the best economic outcome, decide on area priorities, and improve overall rollout speed and efficiency. To implement its strategy, Deutsche Telekom needed to identify and prioritize several internal and external data sources, including environmental data, process data, data from workforce planning and scheduling, customer data, network data, and competitive/market data. Additionally, each data source has its own characteristics in terms of security and regulatory compliance related to authorized use that need to be well-understood for use case application.

THE USE CASE-DRIVEN APPROACH DEFINES A CLEAR VISION FROM THE START

Creating a map of data sources and use cases helps identify the data pools to address first, based on the prioritization done at the use case level. This approach is much better than embarking on a one-off, end-to-end data cleanup program, which may be very costly and take years before delivering results. As such, the use case-driven approach defines a clear vision from the start and then works its way to the foundations required for each use case slice. This significantly accelerates the time to value compared to a foundational capability approach that builds the foundations before reaping the benefits (see Figure 3).

Figure 3. Use case-driven approach vs. foundational/capability-building approach



Source: Arthur D. Little



DATA GOVERNANCE FOR AI

Given the critical importance of data in an increasingly AI-based future, companies need to introduce and embed a robust governance approach. This means treating data as a key asset, just like other physical and intellectual assets. Overall, three aspects need to be addressed:

1. **Process** — capture and measure the quality of data at its source, use a consistent data model to harmonize and correct data at the aggregation and transformation stages, and actively monitor quality with tailored access to meet use case requirements.
2. **Technology** — create “data products,” which are data assets that have been engineered to deliver datasets for specific purposes by integrating data from various sources, processing it, and making it accessible to a defined set of users.¹ These products serve data to the whole organization in a findable, accessible, interoperable, and reusable way to feed the prioritized use cases.
3. **People** — allocate clear data responsibilities by holding data owners accountable for all data aspects in a given domain close to the business rather than the IT function, for example.

Figure 4 shows the key elements, beginning with the process.

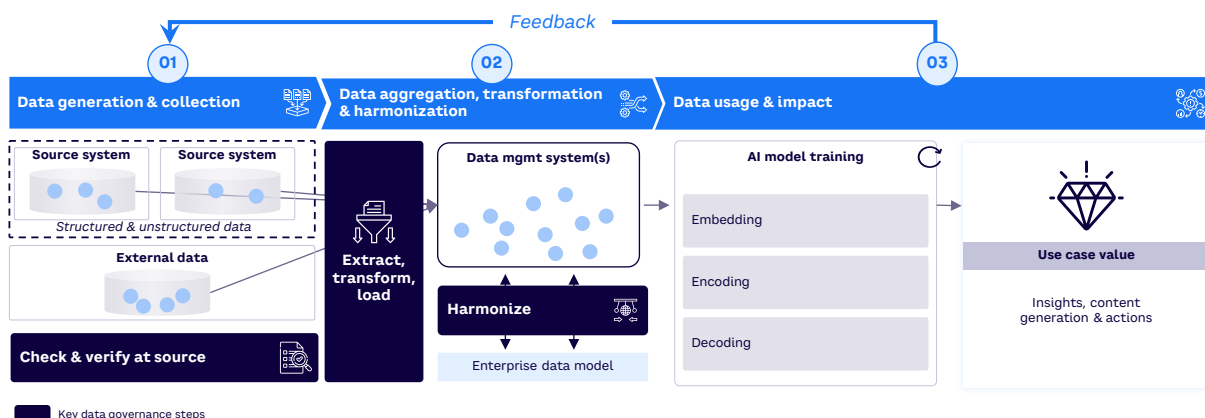
¹ For more information, see: Bridgwater, Adrian. “What Is a Data Product?” *Forbes*, 3 July 2024.

The **process** needs to recognize and map the flow of data from its conception to its eventual use in model training and insight generation. The key governance elements of best-in-class examples include checking and verifying at the source; minimizing errors in data input, extraction, transformation, and loading into the data management system; and putting in place automated measures to correct and harmonize data across different sources. This is essential as different data sources may use different definitions and data attributes; for example, the definition of a customer or a product may be different in a marketing database versus a manufacturing database.

On the **technology** side, apart from the various specific digital tools needed for efficient and comprehensive data management, the key concept for governance purposes is to create data products within the broader digital product management process.

An example from the telco world would be a product consumption or network asset data product that takes raw consumption or asset sensor data and converts it into information to support a range of uses cases, such as client self-service and operational monitoring but also more longer-term decisions on product strategy and asset modernization.

Figure 4. Data governance process for AI



Source: Arthur D. Little

As such, data products should be seen as the “data” part of digital products. By extending “product thinking” (see the ADL Viewpoint “[Corporatizing the Speedboat](#)”) to data beyond the systems, organizations can better reuse data across a variety of use cases to save costs and time. One key aspect of data product design is the need to consider interoperability and compatibility throughout the organization, as well as the product’s intended current and potential future use case(s). Data products can be created on the back of prioritized use cases and can support required data cleanup efforts. In the telecom industry, data products are also being used as a key component to expand company offerings beyond communications services, giving telcos a new generation of revenue opportunities as digital service providers.

On the **people** side, embedding data governance relies on people being allocated clear accountabilities and responsibilities for the different steps of the process. Irrespective of organizational model, some basic data governance roles are required to ensure adoption of data governance standards with a priority focus on data quality and architecture.

The most prominent are *data owners*, who are held accountable for all aspects of data in a specific domain, such as quality, accessibility, and metadata, including data definitions. In addition, typically an enterprise data architect will be responsible for the overall enterprise data model and ensuring interoperability across teams.

DATA MANAGEMENT & GOVERNANCE THROUGH AI

While AI raises the standards for data, it is also transforming how organizations handle both data management and governance. On the data management side, AI can help manage data more effectively by automating data ingestion, enhancing data quality, and optimizing storage, while on the governance side, it can help organizations enforce policies and monitor and ensure compliance. Figure 5 uses concrete examples from the technology and telecom sectors to provide an overview of the areas where AI enables data management and governance.

Figure 5. Overview of AI-enabled data management and governance

ILLUSTRATIVE

		TECHNOLOGY COMPANY EXAMPLES	TELECOM EXAMPLES
01	 Data management	 Snowflake uses AI to automate cloud data warehousing, minimizing manual intervention & enhancing scalability  Talend leverages machine learning to clean/standardize data, ensuring high data quality in real time  Palo Alto Networks uses AI to monitor & protect sensitive enterprise data from cyber threats	 AT&T uses AI-powered data lakes & machine learning to analyze customer behavior for targeted marketing/service recommendations  SK Telecom uses AI-driven data cleaning to maintain high-quality, bias-free data in contact centers, enabling automation & personalized interactions  Comcast uses AI-powered data governance to prevent data breaches
	 Data error detection		
	 Data security & threat detection		
02	 Data governance	 Microsoft Purview uses AI to classify data across (un)structured sources, ensuring governance compliance  Collibra provides AI governance solutions that automate compliance workflows & ensure data integrity  Alation uses AI for metadata mgmt, helping organizations understand/govern data assets more effectively  Informatica uses AI in its Data Governance platform to help data stewards manage enterprise data policies	 Orange Group uses AI-enhanced data governance to classify sensitive customer data  Telefonica uses AI-driven governance tools to enforce GDPR & AI Ethics compliance, ensuring transparent AI-driven decision-making  Sky Italia uses AI for automated data lineage tracking, ensuring transparent audits & regulatory reporting  SK Telecom uses AI-driven governance to help data stewards ensure compliance, transparency, & responsible AI decisions
	 Automated data classification & access control		
	 Regulatory compliance & risk management		
	 Data lineage & metadata management		
	 AI-powered data stewardship		

Source: Arthur D. Little

Additionally, AI is increasingly forming the connective tissue between data management and data governance. It ensures that the operational aspects of managing data align with strategic governance policies. For example, AI can help enforce data governance rules in real time by flagging improper usage during the data management process, and it can lead to better data classification, ensuring that policies are consistently applied across all data assets.

Hyperscalers integrate AI-driven governance features directly into their cloud-based data management solutions, making compliance and security more proactive. Because of increasing data privacy regulations and a continuous expansion of the digital footprint for many organizations, the challenge of data management and governance needs to be supported by the right enablers.

By leveraging AI, organizations can reduce human error and enhance compliance and security to ensure that both data management and data governance are not only more efficient but also future-proofed against evolving regulations and threats.

AI IS INCREASINGLY FORMING THE CONNECTIVE TISSUE BETWEEN DATA MANAGEMENT AND DATA GOVERNANCE

Case study — Ericsson

Ericsson is one example of a large telecom corporation that recognized the need to create a better end-to-end data governance approach, from ingestion to consumption. The company placed data governance at the core of its strategy to unlock the full potential of AI, driving innovation and operational efficiency across its telecom ecosystem. Its federated data model ensures consistent governance across domains while maintaining flexibility for domain-specific optimizations. Three key pillars include:

1. **Foundational data capabilities.** Ericsson prioritizes clean, accessible, and scalable data, enabling seamless alignment of AI initiatives with business objectives.

2. **Data-centric transformation.** Data is at the heart of Ericsson's digital transformation to enable agility and foresight in navigating complex global markets.

3. **Focusing on business problems.** AI use case development starts with strategic business challenges to ensure measurable value and impact. Caitlyn Halferty, Ericsson's global chief data officer, cited the importance of aligning data and AI with strategic goals to drive value: "We really implemented a shift in thinking by starting with the business problem," she explained.



Case study — Australian telco

An Australian telco operator's ambitious goal of enhancing 100% of its key business processes with AI by the end of FY2025 is commendable. The company's strategic shift toward leveraging AI, in response to the increasing prevalence of data breaches, illustrates a forward-thinking approach to strengthening its data practices to secure sensitive information while establishing a strong foundation for AI-driven initiatives. However, it faced a significant challenge in the readiness of its data, including both the infrastructure and the organizational culture surrounding data management. To address this, the telco adopted a robust data strategy built around three key pillars that align well with ADL's emphasis on strategic transformation:

1. **Implementing value-led data strategies.**

This pillar prioritizes the alignment of data practices with tangible business outcomes. This focus ensures that data governance is tightly integrated with AI objectives, maximizing the ROI in both data management and AI initiatives.

2. Cultivating a data-driven culture. Beyond traditional governance, the telco has worked to instill a sense of collective responsibility for data management across all levels of the organization. This is a crucial element for embedding data accountability, similar to the company's cybersecurity culture, where employees understand the importance of their role in protecting data and driving business outcomes.

3. Simplifying the data landscape. By reducing data sprawl and eliminating duplication, the company has streamlined its infrastructure to ensure that clean, well-organized data can efficiently power AI applications. This simplification is essential for ensuring that AI-driven solutions can scale and deliver impact quickly.

This three-pillar strategy has already yielded tangible results for the telco, as evidenced by successful initiatives such as its AI-driven network-monitoring systems, which enhance the organization's service reliability and demonstrate the impact of its data-first approach in aligning AI and data governance.

CONCLUSION

PROACTIVE, NOT REACTIVE

MASSIVE, COSTLY DATA CLEANUP INITIATIVES RARELY DELIVER THE EXPECTED IMPACT

Businesses recognize the potential in their vast amounts of data but often struggle to unlock real value, especially with the explosion of AI opportunities. Massive, costly data cleanup initiatives rarely deliver the expected impact. A smarter, more sustainable approach embeds data governance from the start to prioritize high-value AI use cases.

This means shifting from reactive data fixing to a **strategic, AI-ready data governance model** by:

- 1 Aligning data with AI priorities** — focusing on datasets that directly enable high-value AI applications
- 2 Ensuring data validation at every stage** — implementing processes to verify and harmonize data at every step
- 3 Creating data products for accessibility** — treating data as a reusable asset across the organization
- 4 Establishing clear governance ownership** — assigning governance roles and accountability to key individuals

Data quality has always been important, but AI has made it into a critical competitive advantage. Companies taking a structured, governance-first approach will reduce risks and accelerate time-to-value to effectively unlock AI's full potential.





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