LUMO INSIGHTS

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AI's new divide: data-rich leaders vs data-poor laggards

Executive Summary

Data - not models - has become the deciding factor in AI success. New surveys and industry moves this week reveal that many companies are stalling due to data quality and governance weaknesses, while a few data-savvy leaders are gaining an AI edge. At the same time, both tech providers and regulators are raising the bar for enterprise data strategy as AI scales.

Data architecture overhauls for AI scale

Over three-quarters of organisations now report using AI in some capacity, meaning artificial intelligence has gone mainstream in the enterprise. Yet many are hitting a wall when they try to scale beyond initial pilot projects. A new global survey of IT architects found that 95% of enterprises have had to delay or cancel at least one AI project in the past year because their data infrastructure couldn’t meet governance, compliance, or regulatory requirements. In other words, companies’ AI ambitions are being held back by the very foundations on which their AI systems run - their data architecture.

Recognising this, a wave of major upgrades to data environments is now underway. In what one vendor calls the Great AI Re-Architecture, 72% of surveyed enterprises say their current data architecture requires a significant overhaul to meet future AI needs at scale. Legacy data warehouses and batch-processing pipelines built for traditional analytics are struggling to support modern AI workloads that demand massive scalability, real-time data, and rigorous control. Many organisations are therefore embracing hybrid cloud data architectures - combining on-premises and cloud systems - to bring AI closer to where their data resides without compromising security or performance. Notably, 66% of companies in the survey have even moved some AI applications from public cloud back to private clouds or on-prem data centres in the past year, seeking greater control over data location, compliance, and cost management.

Crucially, concerns around data security, governance, and compliance have now overtaken raw processing speed as the primary drivers of these architecture changes. In the survey, 42% of respondents cited those trust and control issues as their top reason for overhauling data infrastructure, surpassing the desire to boost performance (35%) or expand AI’s scale (33%). This marks a significant shift in enterprise IT priorities: where once throughput was king, today trusted, well-governed data is regarded as the new backbone of AI success. Organisations that modernise their data architecture - making data more integrated, accessible, and secure - are positioning themselves as AI leaders, while those clinging to outdated data systems risk falling further behind.

Data quality & governance: the new AI bottleneck

For years, data teams concentrated on collecting and analysing information. But AI is revealing a new reality: making data accessible is not enough if it isn't also accurate, well-governed, and easy to integrate. In one survey earlier this year, a majority of IT leaders admitted that key projects were hindered because they couldn't get 100% of the data they needed out of silos - a clear sign that unclear data ownership and fragmentation still plague many enterprises. Likewise, nearly half of organisations said their AI initiatives have directly exposed gaps in data quality or governance that previously went unnoticed. These wake-up calls highlight how data problems often lurk beneath the surface until AI projects stress-test an organisation's information foundations.

AI systems also tend to amplify any data flaws. A conventional analytics dashboard built on inconsistent data might still offer a rough insight, but an AI model trained on that same messy data could quickly produce confidently wrong decisions at scale. As one expert noted, if you feed AI and automation 'noise', they will simply scale up confusion - but feed them 'clarity', and they will scale up intelligence. In practice, poor data quality and patchy governance create compounding errors and risks when replicated across thousands of AI-driven operations. These issues can rapidly erode trust among business users and customers, as AI confidently delivers results based on flawed or opaque inputs.

It's no surprise, then, that strengthening data governance has become a top priority on the corporate AI agenda. Many CIOs and CDOs are now pushing for unified governance frameworks that cover both data and AI, to ensure consistency, accountability, and trust in enterprise information. One global tech survey found that improving data governance is the number-one data priority for 41% of IT leaders this year - ranking above any direct AI investments. Executives increasingly recognise that without high-quality, well-governed data, even the most advanced AI initiatives will struggle to deliver value. In effect, data governance and quality are no longer seen as back-office issues; they are now front-and-centre factors that determine whether AI projects succeed or fail.

The AI readiness gap: rethinking processes & roles

Even with top-notch technology, many enterprises face a stark AI readiness gap. A new Deloitte survey of over 500 U.S. executives found that while enthusiasm for 'agentic' AI - meaning AI systems that can make autonomous decisions - is high, operational preparedness is lagging. A striking 74% of those leaders expect that within four years nearly half of their business processes will be redesigned around AI agents, and 61% predict most of those agents will operate with minimal human oversight. Notably, 75% of respondents agree that human collaboration with AI will create more value than fully automating processes, reflecting a vision of powerful human-AI partnership.

However, few organisations have made the necessary changes to realise these ambitions. Only about 5% of companies in the study said their business processes are 'highly prepared' for AI agents today, and just 1 in 5 are prepared to redesign core workflows for autonomous operations. Most firms have not yet adjusted roles or governance structures to accommodate AI: 84% have not redesigned job roles to work with AI, and around 79% lack a mature model governance framework for their AI systems. Deloitte's report famously compares this to bolting a jet engine onto a bicycle - the technology may be ready to blast forward, but the underlying organisation isn't built to handle the speed.

The message for senior leaders is that technology alone isn’t enough - success with AI depends on reengineering processes and roles in tandem with data improvements. The companies pulling ahead treat AI as a catalyst for broader business transformation, not just an IT project. They are auditing and rebuilding processes (and the data that feeds them) before layering in AI, while also investing in training employees to work alongside intelligent systems. This upfront work is essential. The vast majority of firms remain unprepared and will be playing catch-up, while the small minority who have invested early in modern data management, governance, and process redesign are creating a widening competitive advantage.

Next-Gen data platforms: from lakehouse to real-time

To truly capitalise on AI, enterprises are also upgrading their data infrastructure with next-generation technologies. Traditional data architectures that rely on batch processing and disparate systems struggle to support AI applications operating in real time. Industry analysts observe that a large share of AI projects fail not because of poor models, but because data pipelines are too fragmented or slow to supply AI systems with the information they need, when they need it. One Gartner analysis found that 60% of AI projects lacking 'AI-ready' data (clean, well-integrated information) end up abandoned before they can deliver value - a striking reminder of the importance of real-time data readiness.

In response, modern architectural approaches like the data lakehouse are rapidly gaining traction. A lakehouse is a new kind of data platform that combines the reliability and governance of a traditional data warehouse with the flexibility and scale of a data lake. By using open table formats (such as Apache Iceberg) and unified data catalogues, lakehouse systems let organisations analyse both structured and unstructured data in one place. Just last week, IBM announced an open lakehouse catalogue for its Netezza analytics platform that will allow every data and AI engine to work from one governed, trusted version of enterprise data - with no need to duplicate or move information across different systems. This approach aims to eliminate silos and ensure that AI models always draw from a single source of truth.

Another emerging innovation is the rise of vector databases and integrated search for AI. Vector databases are purpose-built to store the complex embeddings that represent text, images, and other unstructured content, enabling fast semantic similarity searches - a key capability for AI applications like generative AI chatbots or recommendation engines. Rather than standing up entirely separate infrastructure for this, some enterprise data platforms are embedding vector search directly into their core databases. For example, IBM's latest Netezza update now offers built-in vector storage and similarity search inside the data warehouse itself, giving teams a foundation for semantic queries and AI-driven analytics without a separate vector engine. Likewise, cloud data providers such as Snowflake are focused on data interoperability - creating governed data layers that allow AI and analytics services to access live information in place, instead of relying on redundant, copy-based pipelines. By reducing data movement and speeding up access to context-rich information, these next-gen platforms ensure that AI applications get the timely, trusted data they require - all under proper governance.

Data as competitive moat - and mandate

Amid all these changes, one thing is becoming clear: data has become a primary source of competitive advantage in the AI era. As cutting-edge AI models become widely accessible and commoditised, proprietary data is increasingly what differentiates one company's AI capabilities from another's. Venture investors point out that distribution and unique datasets are now among the only truly durable 'moats' a business can have in this landscape. In fact, Gartner's 2026 industry survey estimated that 82% of the market valuation of AI-focused startups comes from their proprietary data assets - not from their algorithms or computing infrastructure. Established enterprises likewise are recognising this dynamic and racing to turn decades of customer records, operational data, and domain expertise into strategic data assets that competitors cannot easily replicate.

At the same time, the push to monetise data through AI has drawn intense scrutiny from regulators and the public. August 2026 marked the start of enforcement for the European Union's landmark AI Act (the world's first comprehensive AI regulation), which imposes new obligations on how organisations manage and document data for certain AI systems. Among its provisions are requirements for transparency (for example, AI-generated content must be clearly labelled as such) and strict data governance for 'high-risk' AI applications, including documentation of training data sources and measures to ensure privacy and non-discrimination. Companies that fail to comply can face fines of up to €35 million or 7% of global annual turnover - meaning poor data practices now carry not just operational risk but significant legal and financial risk as well.

For C-suite leaders, these trends serve as both a warning and an opportunity. **First**, cultivating high-quality, well-governed data is no longer just an IT concern - it is central to competitive strategy and even company valuation. **Second**, data responsibility and compliance can no longer be an afterthought. Customers, investors, and regulators are demanding greater transparency and accountability in AI, so organisations must bake privacy, security, and ethics into their data architecture from day one. In short, treating data as both a competitive asset and a compliance mandate will position enterprises to innovate with AI confidently while protecting their reputation and minimising risk.

Key Statistics

- 95% of enterprises have delayed or cancelled AI projects in the past year due to data governance, compliance, or regulatory challenges.
- Only 5% of organisations say their business processes are 'highly prepared' to work with autonomous AI agents.
- 66% of enterprises have moved some AI workloads from public cloud back to on-premises or private cloud in the past year.
- 73% of executives cite data privacy and security as their top AI risk when deploying AI solutions.
- 82% of the market value of AI-focused startups is now attributed to their proprietary data assets.

KEY TAKEAWAY

Data readiness is now the make-or-break factor for AI success. Even the best models cannot deliver value without modern data architecture, quality data, and strong governance. Leaders who invest in robust data foundations today will outpace those who don't.

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