



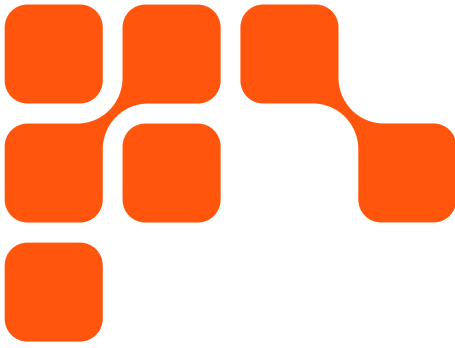
**CLOUDERA**

SURVEY REPORT

# The Evolution of AI: The State of Enterprise AI and Data Architecture

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## INTRODUCTION

In just the past year, artificial intelligence (AI) has surged from a strategic priority to an urgent mandate for business leaders. No longer confined to pilot programs or future forecasts, AI is now reshaping operations, redefining workflows and rewriting the rules of competition. IT leaders now see AI not just as a tool, but as a force multiplier – capable of unlocking hidden opportunities, accelerating efficiencies, and empowering our workforce hungry for the next era of productivity.

But the path toward successful AI adoption is not always the same from business to business. Where some leaders see opportunity, others see unnecessary risk or inefficiencies. In 2024, Cloudera released its inaugural survey examining the landscape of enterprise AI and data architectures, “[The State of Enterprise AI and Modern Data Architecture](#).” That report uncovered powerful trends showing just how ubiquitous enterprise AI has become—of the 600 IT leaders Cloudera surveyed, 88% said that they were currently using AI within their companies.

Now, one year removed from that survey, Cloudera is revisiting this topic to see how enterprise leaders are approaching AI at this time and what changes have occurred. With the second iteration of this survey,

Cloudera has uncovered that enterprise IT leaders are growing more trusting of their organization's data, even as many of the common challenges surrounding AI adoption and implementation remain.

To better understand how the usage, adoption, and barriers to AI implementation have changed in the last year, Cloudera, in partnership with third-party research firm Researchscape, surveyed 1,574 enterprise IT leaders across the U.S., EMEA, and APAC regions and industries, including software/technology, manufacturing, finance, telecommunications, and healthcare.



# The State of Enterprise AI in 2025

The power and potential that AI offers the modern enterprise is no secret. Over the last couple of years, there has been a strong mandate to tap into AI capabilities or risk being left behind. As it stands, an overwhelming number (96%) of respondents said AI was at least somewhat integrated into their core business processes, from fraud prevention to customer and user experience. Of those respondents, 21% said it was already fully integrated into their core business processes, while 54% considered their integration to be significant, and 21% said it was somewhat integrated.

But it's not just about adopting AI; the businesses leveraging this technology are also beginning to see real value. Of surveyed respondents, 52% said they were significantly successful in realizing measurable value with AI initiatives. Only 1% of respondents said they were not successful at all in realizing measurable business value from their AI initiatives.

With so many organizations starting to realize value from their AI initiatives, how have things evolved in the last year?

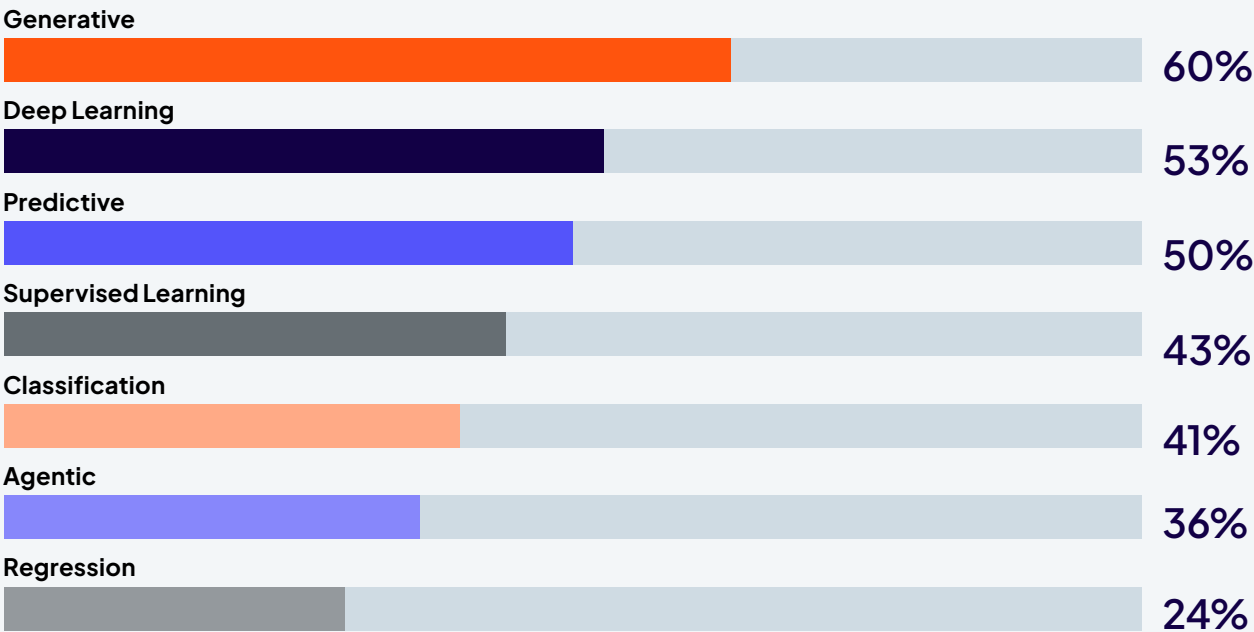
From generative (60%) to deep learning (53%) and predictive (50%), respondents noted a broad range of models they are currently leveraging. With organizations growing more confident in their data, the types of AI models used will only continue to expand and accelerate.

Among surveyed leaders, the results indicate that they are growing more confident in their ability to manage newer forms of AI, like AI agents as well. Thirty-six percent of respondents also noted AI agents as one of the primary types of models they run. And 67% said they felt at least somewhat more prepared to manage new forms of AI, with 26% saying they were much more prepared. As Cloudera's recent survey, [The Future of Enterprise AI Agents](#), indicates, this type of AI model is quickly becoming a core component of business operations. Of those surveyed, 83% said it's important to invest in agents to maintain a competitive edge within their industry.

Compared to 2024, respondents signaled an increase in usage of tools like regression models, which rose from 14% to 24%. Similarly, supervised learning and deep learning saw 8-point increases from last year.

The use cases are vast and span industries from manufacturing to banking. Whether an organization is trying to get ahead of maintenance on the factory floor, wants to revamp their [customer experience](#), or leverages AI agents to help identify fraud and security risks, AI has become a ubiquitous asset in every IT leader's toolbox.

## What type of AI models are you running?





## Today's Data Architectures

Now, let's examine how enterprise IT leaders are handling their data. The enterprise organizations of today have largely embraced a data-driven culture with 86% of respondents saying their organization was at least moderately data-driven. But, like the attitudes expressed in Cloudera's 2024 survey, some variance remains.

Being data-driven isn't just an aspirational goal. It's core to making a business thrive in an increasingly crowded, competitive marketplace. Tapping into the data that a business has on hand, often accumulated over years and decades, helps make AI systems better, provides deeper insights, and can uncover new growth opportunities. Yet, only about one quarter (24%) of survey respondents said their culture was extremely data-driven—a number that represents an increase from 17% the previous year, but signals there's still room to grow in how a data-driven approach is prioritized.

**Compared to last year, nearly one-quarter (24%) of respondents said they trust their data much more than they did one year ago, and 41% said they trusted their organizational data somewhat more.**

As IT leaders lean on their data architectures to help fuel AI initiatives, there are a multitude of capabilities that they want. Among this year's survey respondents, 52% cited integrated AI and ML ops tooling as most important. Close behind, just over half of respondents (51%) also said automated data pipeline orchestration, followed by granular data governance (44%), and unified data access layer (41%).

Among the data architectures cited for storing organizational data, private cloud proved to be the most commonly cited (63%) approach for organizations, followed by public cloud (52%) and data warehouses (42%). Looking closer at the ways organizations store their data, it is noteworthy that even as private and public cloud were most popular, many still rely on on-premises architectures. In fact, 38% said they leverage on-premises mainframes and another 32% said they utilize on-premises distributed architecture.

Even as businesses expand AI use and explore new forms of the technology, they have maintained a level of trust and enthusiasm for these on-premises environments over the last year. As on-premises environments remain highly preferred among IT leaders, it's even more important for those organizations to incorporate the right platform, capable of bringing AI to data, wherever it may reside—public clouds, on-prem data centers, and at the edge.

In addition to the other data storage locations, nearly one quarter (24%) said they leveraged a data lakehouse—an architecture that is critical to helping tap into data spanning structured and unstructured at enterprise scale. Of those who were currently leveraging data lakehouses, 34% said the biggest advantage to this approach was improved operational efficiency. Another 22% said that strengthened data governance and compliance was the biggest advantage.

### Where is your company's data stored?

**63%**

In a private cloud

**52%**

In a public cloud

**42%**

In a data warehouse

**38%**

On-premises mainframe

**32%**

On-premises distributed

**31%**

In other physical environments

**25%**

In a data lake

**24%**

In a data lakehouse

# AI Implementation Challenges

AI usage and integration are accelerating at breakneck speed. But that growth doesn't come without challenges. Respondents noted that their data architectures face a number of technical limitations when it comes to supporting AI. These include: data integration (37%), storage performance (17%), compute power (17%), lack of automation (17%), and latency (12%).

Looking closer at data integration limitations, this is something that can be seen when organizations utilize LLMs. Their effectiveness hinges on the data they are trained on. Many of these models are already trained on public data. The real value though, lies with enterprise data. Specifically, an organization's ability to make 100% of data available for AI initiatives.

Issues remain when it comes to accessing and utilizing an organization's data for AI initiatives. As it stands, very few IT leaders have achieved 100% data access. In fact, just 9% said that all of their data was available, and a mere 38% of respondents noted that most of their organization's data was accessible and usable for AI.. That means many organizations are giving AI an

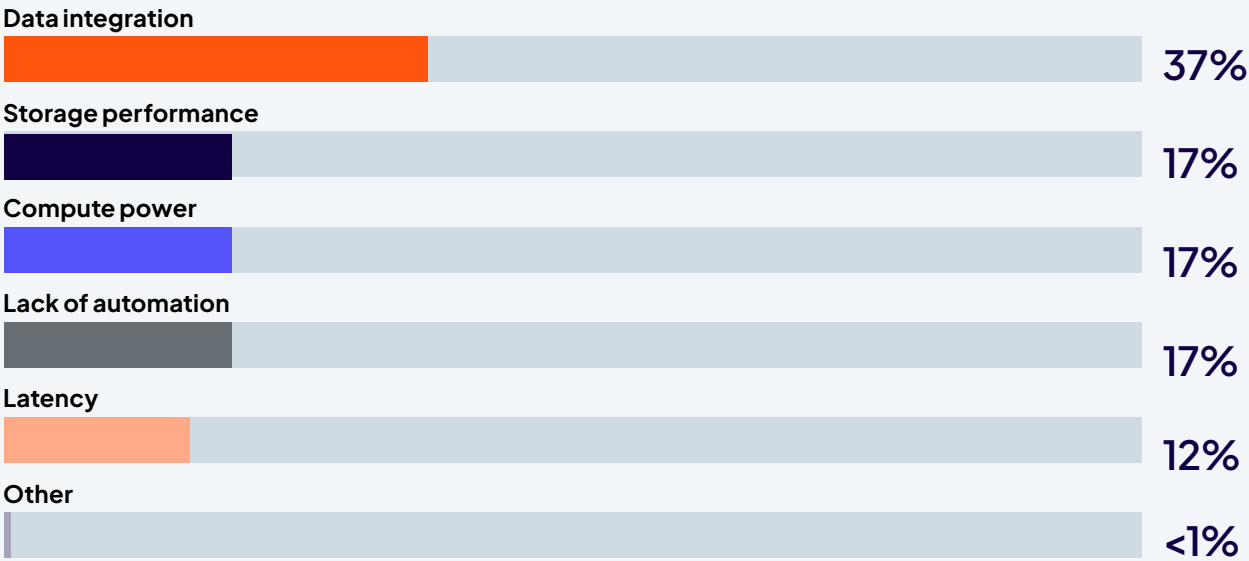
incomplete foundation to work with. Successful AI initiatives require businesses to assert control over 100% of their data, in all forms.

Many of these challenges have persisted in recent years as enterprises accelerate and scale their adoption of AI initiatives—leveraging the capabilities of their data architecture to do so. When compared with responses from 2024, one area that has seen a notable rise among respondents is in regard to the cost to access computer capacity for training models. One year ago, just 8% of surveyed IT leaders noted these costs were too high. Today, that number has increased to 42%, representing a 34-point increase.

Data siloes have been an all-too-common problem for organizations as they try to get a handle on data enterprise-wide. Many of these enterprise organizations have data that is highly valuable for AI tucked away in various corners of their IT operations.

For surveyed respondents, 61% said siloed data has at least sometimes negatively impacted their ability to scale AI initiatives. But many are seemingly getting a handle on this problem, with 35% saying this was rarely impacting their own AI initiatives.

The biggest technical limitations in respondent's current data architecture when supporting AI workloads:



## Addressing Security Challenges in Data and AI

Digging beyond integration and operating challenges, many enterprise leaders say security is a concern for them as well. As AI finds its way into every facet of business operations, IT leaders need the right tools to stay secure and meet increasingly stringent regulatory demands.

When asked what barriers to AI adoption their organization is facing, 46% of respondents said they are worried about the security and compliance risks of AI.

So, what are those security concerns? According to half of the respondents (50%), data leakage during model training ranked as the top concern relating to AI security. Right behind it were both unauthorized data access (48%) and insecure third-party AI tools (43%). Looking closer at the top concerns of enterprise IT leaders, access control has a big role to play here. Is our data being exposed, and who can get to it while it's in use for model training or AI initiatives? At a time when increasingly stringent data regulations are taking effect, having total control over data access is paramount. Leaving highly sensitive data exposed puts the entire organization, from customers to employees, to partners vulnerable.

While those concerns linger for AI security, Cloudera's survey found that many feel confident in their organization's ability to secure data used in AI systems. Among respondents, 24% said they were extremely confident, 53% noted they were very confident, and 19% felt somewhat confident. This is



supported by a year-over-year shift in views around securing organizations' data landscapes. In 2024, this was a factor that 66% of respondents said was the biggest challenge, whereas in 2025, that number declined to 54%.

Although confidence in data architecture is rising, this year's survey hinted at some variance in how organizations are handling access control. Forty-four percent of respondents stated their organization utilizes full data classification with policy enforcement and 45% said they use granular access by data type or sensitivity. And one-in-ten (10%) respondents said their organization only uses basic role-based access.

### What are your top concerns related to AI security?

**50%**

Data leakage during model training

**48%**

Unauthorized data access

**43%**

Insecure third-party AI tools

**39%**

Lack of visibility or explainability in model outputs

**35%**

Model manipulation or poisoning

**34%**

Regulatory non-compliance

**21%**

Hallucinations



## The State of AI, a Country-by-Country Breakdown

Across North America, Europe, and Asia, organizational culture has continued to emphasize a data-driven approach. In the U.K., 70% of respondents said their organization's enterprise culture was either very or extremely data-driven. That sentiment is shared by respondents in other countries, like South Korea, where 76% said their organization was either very or extremely data-driven.

Looking at organizations across EMEA, countries like the United Arab Emirates showed slightly less confidence, with 63% of respondents saying they were at least very data-driven. And of those, just 24% said their organization was extremely data-driven; this compared to the most confident country surveyed, as 47% of Brazilian respondents said they were extremely data-driven.

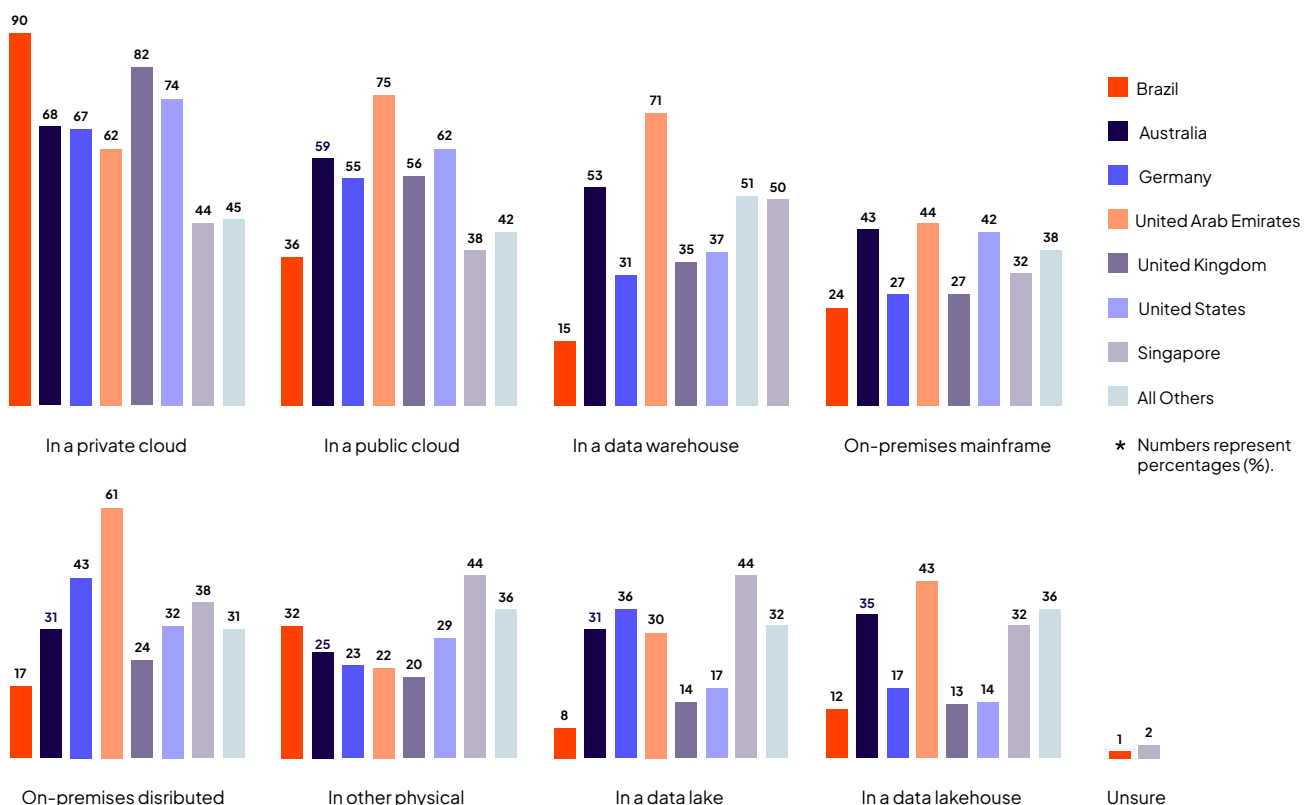
In the U.S., the emphasis on a data-driven culture has grown stronger over the last year with respondents who said their organization's culture was extremely data-driven growing from 61% in 2024 to 80% in 2025. Similar shifts in organizational culture can be seen across Europe. In Germany, the number of respondents who said their organization's culture was extremely data-driven rose by 22 percentage points, from 8% in 2024 to 30% as of July 2025.

Taking a closer look at how organizational data is stored, respondents in Brazil showed a strong preference for private cloud, being cited by 90% of surveyed leaders with the next closest approach being public cloud at 36%. In comparison, that number was 74% in the U.S. where public cloud was much closer at 62%. In the U.K., 82% of respondents said they utilized private cloud.

The advantages that matter most to enterprise leaders also show some variance based on region. In the U.S. and U.K. security ranked as the biggest benefit (77%) to a hybrid data architecture, whereas for Brazilian respondents, the top benefit was flexibility at 75%, with security ranking fourth (60%) behind improved data management (65%) and improved data analytics.

### Where is your company's data stored?

#### Key Countries



## What's Next for Enterprise AI?

The trends aren't surprising. Businesses that foster a data-driven culture and prioritize AI initiatives are seeing real, tangible business value as a result. But even as confidence surges, many enterprises aren't making 100% of their data available and accessible to AI. That lapse in data management could mean missing an opportunity to generate greater ROI and deliver accurate insights.

When asked where they expect the biggest returns on investment for AI over the next 12 months, respondents focused on a few key areas. Twenty-nine percent of surveyed enterprise IT leaders said they saw operational efficiency as the area likely to yield the biggest return. This was followed by customer experience (18%), product innovation (15%), revenue generation (14%), risk management (13%), and talent productivity (11%).

Many of the priorities and benefits of AI that were highlighted in the 2024 survey have remained at the forefront for 2025—but so have many of the challenges. Compliance and governance have continued to be top of mind for organizations, staying relatively stable in 2025, being cited by 37% of respondents compared to 38% in 2024. Likewise, data management costs, complex processes, and standardized data formats all persist as challenges within respondents' data landscapes.

With those challenges lingering, it remains clear that enterprise IT leaders need the right tools to fully utilize their data and unlock the vast potential that AI holds. With IT leaders across the globe opting for a variety of data storage approaches, success hinges on a platform that can bring AI to data anywhere. This platform should deliver a consistent cloud experience across public clouds, on-premises data centers, and the edge, to ensure all data is accounted for in AI initiatives.

We've seen how transformational newer forms of AI, like AI agents, have become, redefining tools from chatbots to search tools. As the pace of AI innovation soars, IT leaders need a platform that instills confidence in organizational data and delivers the expertise and capabilities to seize opportunities with the latest AI tools well into the future.

When IT leaders look for a data and AI platform, there is only one that empowers enterprise organizations to apply AI to 100% of data in all forms. This is something Cloudera makes possible anywhere in the entire data estate. [Learn more](#) about how Cloudera empowers businesses to apply AI and assert control over 100% of their data.



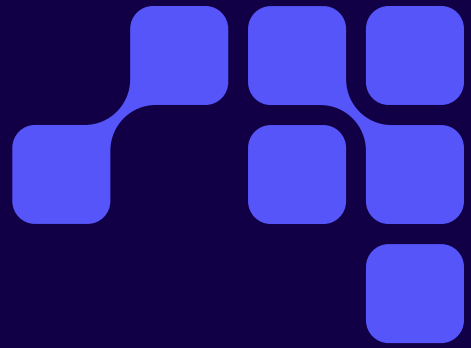
## Methodology

The survey, commissioned by Cloudera and fielded by Researchscape, examines the views of 1,574 IT leaders based across the U.S., EMEA, and APAC regions who work at companies with more than 1,000 employees. The survey was fielded in July 2025. The results of this survey have been weighted to be representative of the overall GDP of surveyed countries.

## About Cloudera

Cloudera is the only data and AI platform company that large organizations trust to bring AI to their data anywhere it lives. Unlike other providers, Cloudera delivers a consistent cloud experience that converges public clouds, data centers, and the edge, leveraging a proven open-source foundation. As the pioneer in big data, Cloudera empowers businesses to apply AI and assert control over 100% of their data, in all forms, delivering unified security, governance, and real-time and predictive insights. The world's largest organizations across all industries rely on Cloudera to transform decision-making and ultimately boost bottom lines, safeguard against threats, and save lives.

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