(OCIENT)<sup>®</sup>

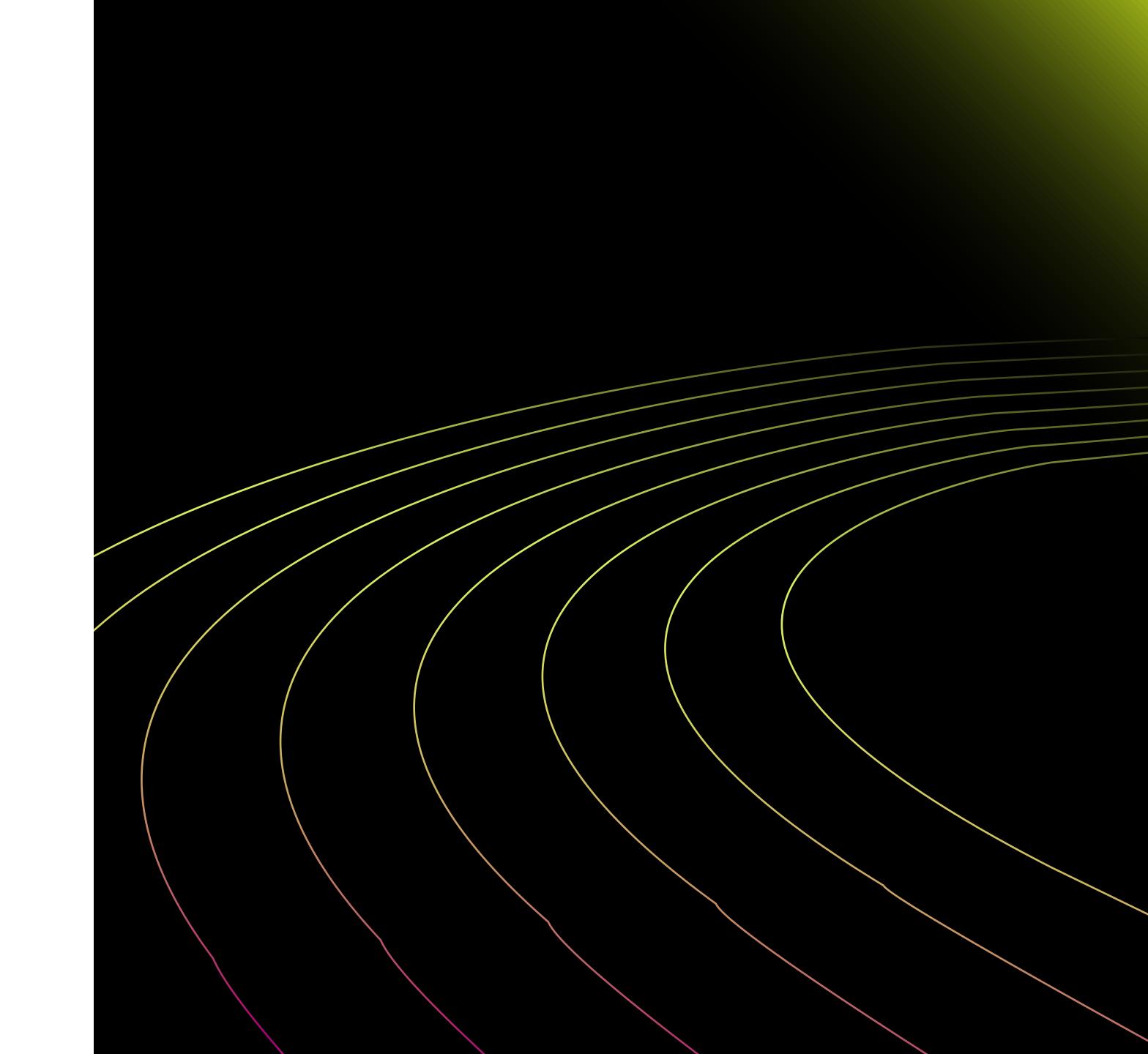
# FROM ROADMAP TO REALITY

# NAVIGATE THE REPORT

- Introduction: A New Era Starts Now
- Key Insight #1: The Al Momentum Shift
- Key Insight #2: Drive to RO(A)I
- Industry Spotlight: AdTech
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Curious about year-over-year insights? Look out for this symbol.



## A NEW ERA STARTS NOW

When we launched the inaugural Beyond Big Data report in 2022, we were just months away from the biggest paradigm shift in business since the digital transformation era. In the three years since ChatGPT sparked mass adoption, AI has shifted from novelty to necessity – driving a surge of high-stakes, high-investment initiatives that are pushing data processing demands to unprecedented levels and testing the limits of legacy infrastructures.

#### In short: We're now in the AI reality.

Our 2025 survey of 500+ data and IT leaders across more than 15 industries shows intention has given way to action. Many leaders and their organizations are moving past preparation and experimentation into real-world AI integration: generating ROI, innovating at speed, and developing the flexible infrastructures that will define the next wave of progress.

See the data defining the moment in **Beyond Big Data: From** Roadmap to Reality.

This report captures the milestone moment where enterprise leaders are seeing real returns on their AI investments and stepping confidently into what's next. Some familiar challenges continue to stand in the way, but the path forward is clearer than ever. Looking ahead, flexibility and scalability will be the engine that powers continued growth. Our four key insights capture this journey:

- The Al Momentum Shift: Data and IT leaders are feeling more confident and prepared for the Al era, but key upgrades are still needed to take full advantage of growing data workloads and Al innovation.
- **Drive to RO(A)I:** Organizations are integrating Al throughout their enterprises and proving notable ROI. But a lack of full understanding of these technologies' capabilities means there's still room to grow.
- Roadblocks to Readiness: Data is growing exponentially, and the same struggles continue to surface year over year: security, compliance, and governance.
- The Fast Track to Scalability: Looking ahead, leaders are investing in flexible deployment models and scalable architectures that can deliver ROI even as data volumes continue to increase.

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#### **The AI Momentum Shift**

- Drive to RO(A)I
- Industry Spotlight:
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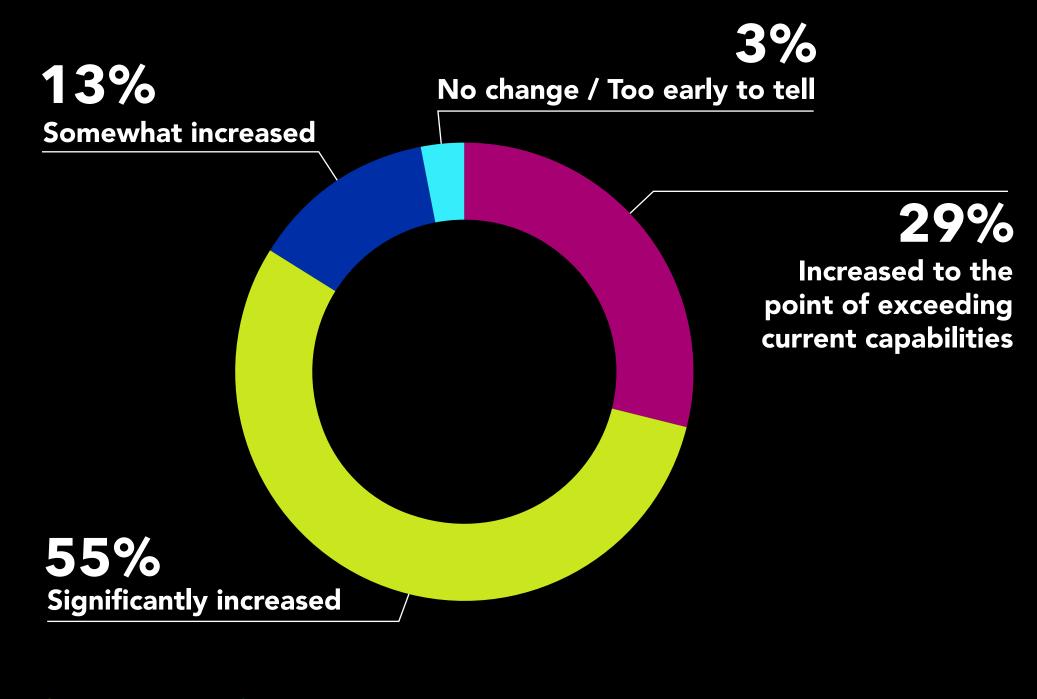
# THE AI MOMENTUM SHIFT

We've hit an inflection point: Today, most enterprise data and IT leaders are facing the AI era head-on, embracing this next chapter with confidence instead of uncertainty. Yet decision-makers recognize it will be essential to continue investing in infrastructure, data quality, and modernization to fully capitalize on the opportunities ahead.

#### STRAIN AND SCALE

Because of the strains AI can place on infrastructure, being ready for change is a major focus across the board – **all but one survey respondent** say AI readiness is a priority for their business.

How have the scale and complexity of data processing requirements been affected by organizational AI initiatives?



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Organizations are scaling their data infrastructures and processing capabilities to meet rising demands.

- More than half of surveyed leaders felt very prepared for increased demands, having anticipated necessary changes;
- 45% were somewhat prepared and are making moderate adjustments.
- Only 4% weren't ready at all.

of leaders report notable data processing increases due to Al

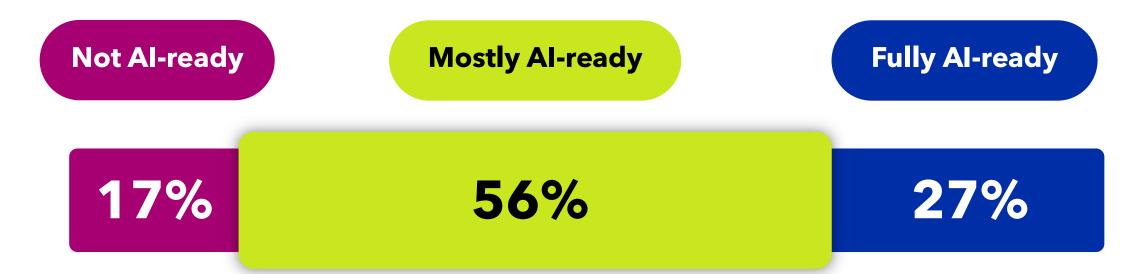
organizations haven't fully prepared for the increased scale and complexity AI introduces

#### **HOW ARE YOU FEELING?**

The mindset of leaders can reveal deeper insights into future-readiness than investment numbers and adoption rates alone. Many data and IT leaders are stepping confidently into the new era, saying they feel ready for Al's realities and excited for what's ahead.

#### Prepped + Ready

Current state of enterprise organizations' data infrastructure:



For leaders still preparing for AI, the focus is on strengthening their foundations first. Most are overhauling data infrastructure or adjusting deployment strategies. And some must address budget constraints or talent gaps before they can get started.

#### Positive + Confident

Leaders at all levels express confidence in their organization's Al expectations, with the C-suite most likely to say so. The directors tasked with executing on expectations feel the same, though more than 5% report less-positive emotions like stress and skepticism.

#### Respondents' outlook:

45% 5%

**Confident and** ready

Excited and optimistic

Other

Level of confidence in AI-related data lineage and governance solutions:

57% 40% 3%

**Very confident** Somewhat confident Not very or not at all

#### KEEPING UP MOMENTUM

Al usage and data volumes will only continue to surge. Survey findings show organizations still must make investments in strengthening data and business foundations to take full advantage of AI, ML, and advanced analytics.



Respondents selected top three

**55%** 

Data quality and preparation

48%

Scalability of existing data analytics solution(s)

46%

Skilled staff to support increasing AI/ML workloads

43%

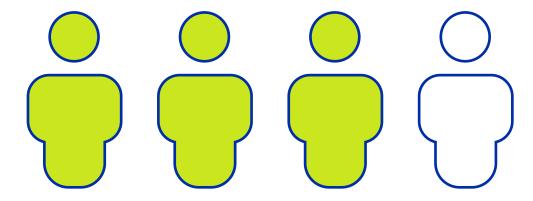
Data movement and pipeline management 40%

Organizational adoption or change management

"Across industries, AI ups the stakes for agile data foundations that perform at scale and in real time. Data stacks of the past (or even today's!) need to evolve from extract, transform, and load (ETL) and dashboards to personalized, multimodal, data-rich experiences and agentic workflows in order to meet this challenge and reap its benefits."

 Iván Markman, Technology Executive & Ocient Advisory Board Member

# Hand-in-Hand Growth: Al and Data Warehousing



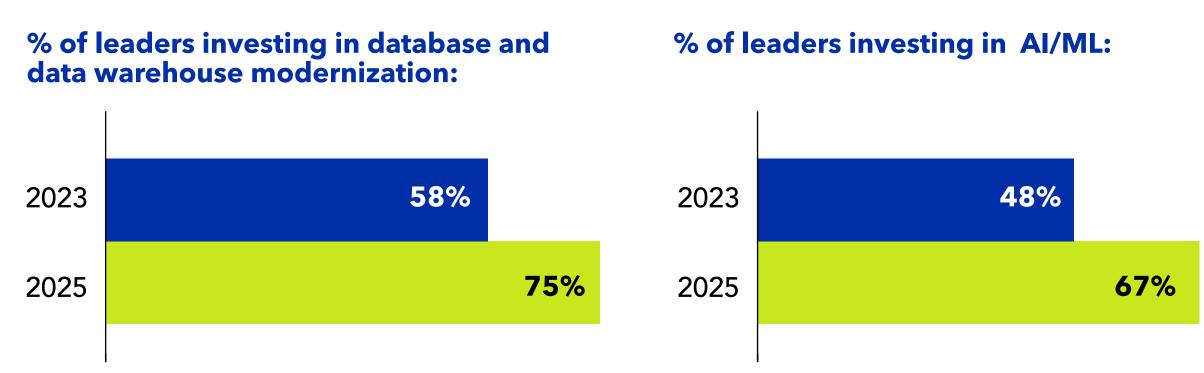
**3 in 4 data and IT leaders** are investing in database and data warehouse modernization over the next 12-18 months

That's equal to the number of respondents investing in security – a telling sign.

Organizations understand their data infrastructure is their competitive moat. Ensuring data is high-quality and well-prepared is essential to achieving sustainable success with AI.



### Over the past two years, investments in AI/ML and modernization have risen in tandem:



#### WHAT DOES IT MEAN?

Businesses now see robust capabilities like data prep and pipeline management, as well as the talent to operationalize them, as key differentiators to drive growth and innovation. We're moving beyond the traditional modern data stack of ETL and dashboards toward one with AI at its core – incorporating vector databases, real-time intelligence, and automated decisioning. The companies that can marry agile data foundations with ambitious AI initiatives will set the pace for their industries.

- A New Era Starts Now
- The Al Momentum Shift

#### **Drive to RO(A)I**

- Industry Spotlight:
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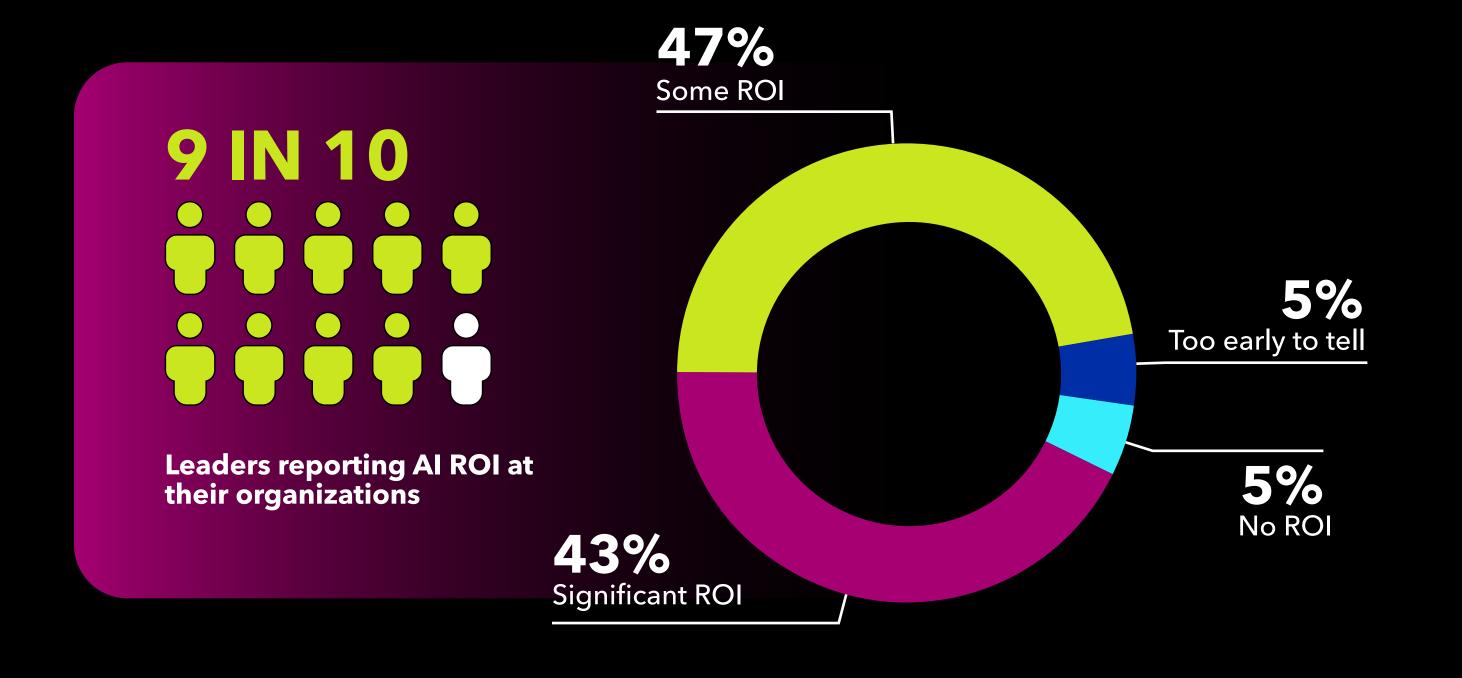
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# DRIVE TO RO(A)I

Leaders are beginning to report ROI from AI, a signal that the technology has progressed from promise to practice. While past years were defined by experimentation, the expectation has shifted: AI must deliver measurable returns. But with innovation moving fast, many organizations still struggle to activate AI's full value across the enterprise.

#### REAL RETURNS

From their Al investments, leaders have been able to demonstrate ...



"On the edge of this new agentic world, the need to flexibly expose massive volumes of data in real time has never been more important. Managing data isn't just about storage or pipelines. It's about enabling autonomous systems that act, adapt, and deliver value at scale. By modernizing data infrastructure, C-suites can empower agentic Al models that don't just predict outcomes, but dynamically optimize for measurable ROI."

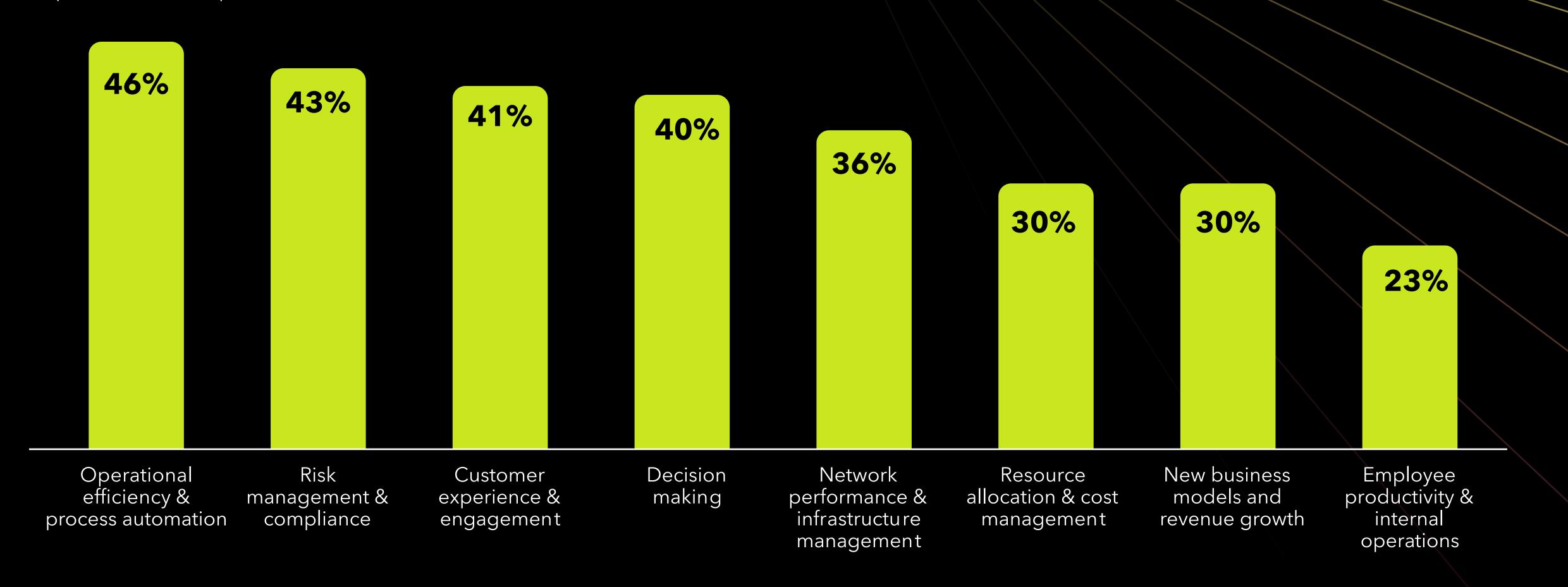
 Wil Schobeiri, CTO, AdTech Product Leader & Ocient Advisory Board Member

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#### Where Is Al Driving Value?

The business areas seeing the most significant value from AI/ML implementation:

Respondents selected up to three



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#### **Predictive AI + Machine Learning**

Just behind generative AI, two-thirds of surveyed leaders report investing in predictive AI – a technology that enables businesses to anticipate trends and behaviors and make faster, more informed decisions. This insight signals a broader shift toward proactive strategies that transform vast, complex datasets into competitive advantage.

#### **Al Agents**

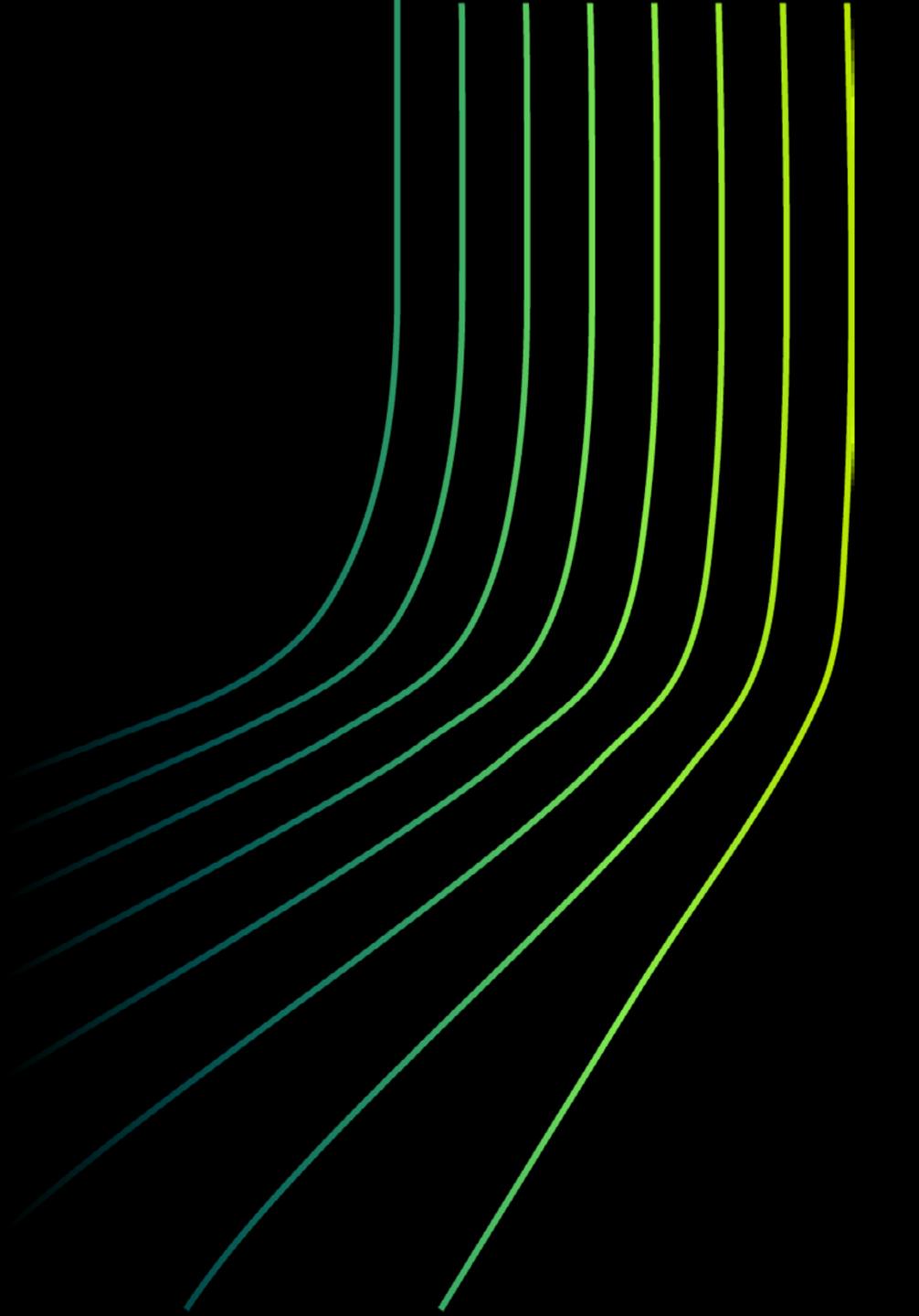
Agentic Al ranks as the least mentioned technology among survey respondents, yet its rise is still striking. Even at this early stage, **41% of data and IT leaders** are **already committing resources to its implementation.** Larger enterprises lead the way, signaling early recognition of agentic Al as the next evolution in automation.

#### Inside the AI Stack

Over the next 12-18 months, leaders are investing in, implementing, or planning to implement:

| Technology                          | % of respondents | Includes  |
|-------------------------------------|------------------|---|
| Generative Al                       | 73%              | LLMs, Text, Image, and Code generation                    |
| Predictive Al /<br>Machine Learning | 66%              | Forecasting, Classification, Anomaly detection            |
| Prescriptive Al / Optimization      | 58%              | Recommending actions, Resource allocation                 |
| Conversational AI                   | 56%              | Chatbots, Virtual assistants, Voice Al                    |
| Natural Language Processing (NLP)   | 48%              | Text analysis, Sentiment analysis, Information extraction |
| Agentic Al                          | 41%              | Al automation   |





#### THE NEXT INFLECTION POINT

Al is evolving at breakneck speed. Even with high confidence and surging investments, there's still room for Al to grow in value and application.



This year, implementing AI/ML capabilities is the leading data and analytics-related priority for leaders over the next 12-18 months

Al/ML has risen over past years' leading priorities, including:



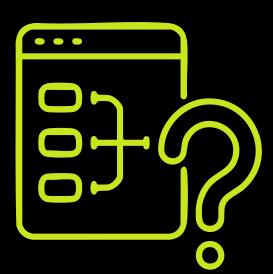
Hybrid or multi-cloud solutions (2022)



Improving data quality and governance (2023 + 2024)



Increased scalability and speed (2024)



#### A Fluency Gap

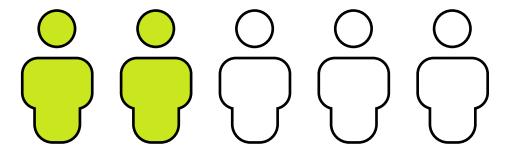
Technologies respondents say their leadership – or they themselves – don't fully understand:

**Generative Al** 

**Predictive Al Agentic Al** 

Nearly half of organizations say finding skilled staff to support increasing AI/ML is one of their biggest challenges. Closing the knowledge gap, freeing internal bandwidth, and building talent at every level could amplify Al's impact.

#### From ROI to Revenue



Despite reports of ROI, 2 in 5 leaders say the AI technologies they've invested in have failed to meet expectations when it comes to driving business revenue growth.

Respondents say AI is less likely to:



Identify new revenue streams



Launch innovative products or services



Optimize pricing and ads

#### WHAT DOES IT MEAN?

The days of experimentation without measurable gains and clear operational wins are behind us. While ROI is on the board, the real prize – realized revenue growth – remains out of reach for many without broader AI scale and sophistication. For now, Al's sweet spot lies in streamlining and optimizing what already exists, setting the stage for the next wave of value creation as adoption matures.

# INDUSTRY SPOTLIGHT: ADTECH

AdTech teams need to know a lot about their audiences. They must handle large volumes of complex data – but this can lead to struggles with data freshness and scale management, creating an urgent need for foundation improvements.

#### Getting Data-Hungrier

Compared to overall survey averages, AdTech respondents were more likely to report investing in:

- Real-time analytics
- Audience/consumer segmentation
- Geospatial analytics
- Predictive Al
- Prescriptive Al

#### **Becoming Data-Fit**

More than any other industry, AdTech leaders cite the following analytics and Al pain points:

- Data isn't fresh enough
- Data is too hard/expensive to manage and scale

#### And they struggle with:

Data movement and pipeline management



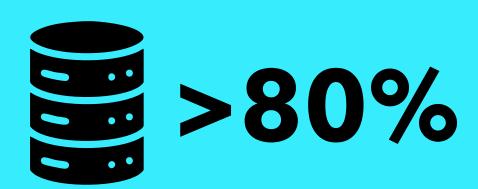
**2X** 

**Twice as many** AdTech respondents plan to adopt geospatial analytics **in the next year compared to today**, highlighting its rising value in key areas like privacy-compliant precision targeting and multi-touch attribution.



#1

Among all the industries surveyed, AdTech has the highest intent to invest in predictive Al. The quality and accessibility of data needed to power predictive Al will play a pivotal role in AdTech companies' ability to innovate.



Managing massive volumes of data is a strategic imperative for AdTech, and more than 80% report investing in database and warehouse modernization to build a stronger backbone. With the right infrastructure in place, these companies can facilitate faster analytics and smarter modeling.

# INDUSTRY SPOTLIGHT: TELCO & CSP

Amid 5G's rise and 6G's approach, the emergence of new IP-based voice technologies, and shifting consumer expectations, telecommunications companies (telcos) and communication service providers (CSPs) are focused on embedding enterprise-wide AI in a safe and sustainable way. For many, this includes making strategic investments in the critical systems – and talent – needed to capture AI ROI.

#### Readiness Check

### Compared to survey averages, telco respondents are less likely to say they feel:

- Prepared for the increased data processing demands from Al
- Very confident in their data governance solutions for AI data pipelines

While large-scale AI/ML may be less of a focus in the near-term, telco respondents see other ways to boost bottom lines. For instance, they're prioritizing **increasing revenue through first-party data**, an area other industries are currently less inclined to invest in.

#### **Building for Tomorrow**

Telcos and CSPs are **more likely** than other industries to be in the middle of actively **overhauling their infrastructures** to be Al-ready. Going forward, they'll introduce more network performance and optimization analytics to help bridge the gap to universal deployment.

53%

A majority of telco and CSP leaders struggle with data skill shortages. More than 50% say there is a lack of talent available to analyze data.

Telcos and CSPs are focused on solidifying their foundations, from data infrastructure to network optimization and other critical enablers. Laying the groundwork positions them to unlock Al's full potential cohesively across the organization.

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#### **Roadblocks to Readiness**

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# ROADBLOCKS TO READINESS

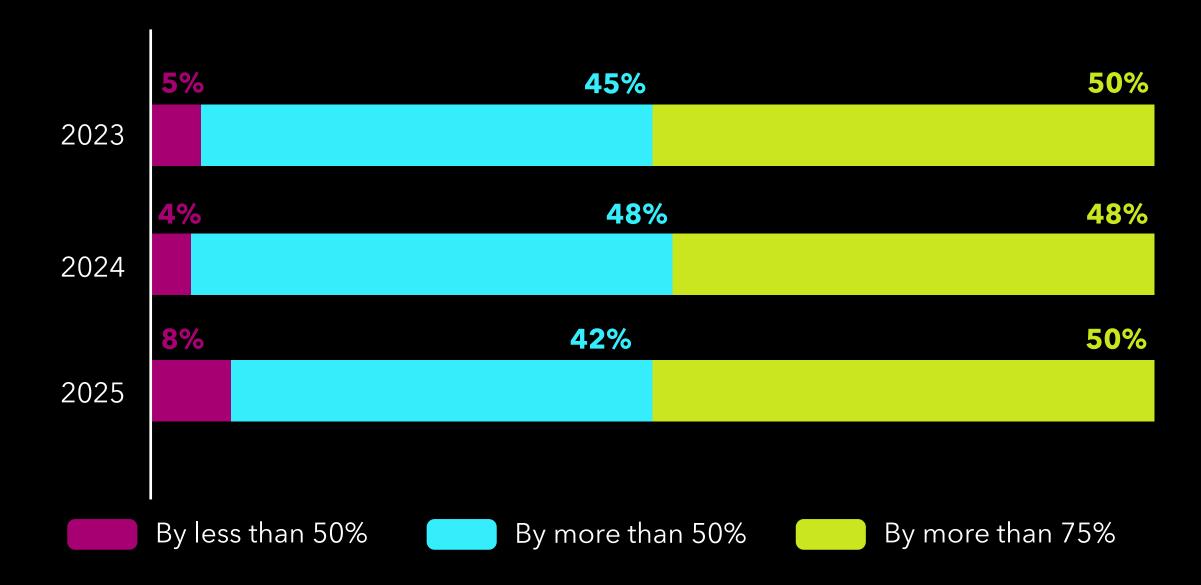
Year after year, we see that data isn't just growing, it's skyrocketing. But security and compliance challenges remain for data and IT leaders, and despite steady investment, these familiar hurdles can still hold organizations back from moving full speed ahead toward Al maturity.

#### DATA DELUGE

With data volumes increasing by more than 50% year after year, growth and complexity are outpacing what many leaders feel they can manage.



Over the next 12 months, leaders expect data will grow:



What do leaders say is preventing their companies from harnessing the full capacity of their data?













Demand for greater flexibility in data warehousing has shot up since last year

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#### **GROWTH VS. GUARDRAILS**

Again and again, organizations are hitting the same roadblock as data volumes and complexity advance: security and compliance. With data privacy restrictions tightening, cyberattacks becoming more sophisticated, and AI compounding existing security risks, the pressure is mounting to find solutions that are efficient, effective, and scalable.

#### Security Keeps Leaders Up At Night

Organizations struggling with maintaining security and compliance as data volume and needs grow

Security concerns dominate, but governance takes a close second. Growth without governance multiplies risk.

#### Biggest data analysis pain points:

**52%** 

**Security – We're** concerned about risk 41% 37%

Metadata and governance

Financial governance and unpredictable costs



Security has been leaders' top pain point every year since we launched the Beyond Big Data report in 2022.

#### Security in the AI Era

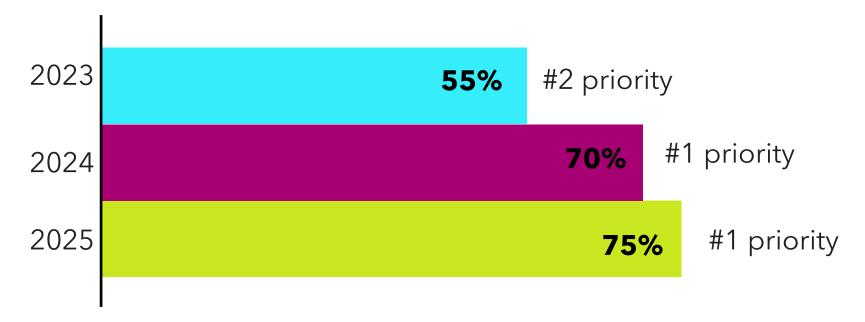
More than 60% of data and IT leaders say data security and privacy is their biggest concern when implementing AI and ML technologies. And when evaluating potential data and Al partners, leaders say data security and privacy capabilities are the most critical factor.

#### The Price of Security



Security solutions have been a spending focus for years. Now, they top the priority list.

#### Leaders planning to invest in security solutions over the next 12-18 months:



Security and compliance needs have leaders looking to make changes.

#### Key drivers of shifting data deployment strategies:





"Accelerating AI initiatives demands that government organizations and other institutions have full, secure access to all relevant data to ensure effective mission execution and to prevent exposing data in a manner that is compliant with laws and regulations."

- Teresa Smetzer, Former Director of Digital Futures at CIA & Ocient Advisory Board Member

#### WHAT DOES IT MEAN?

As scope, sophistication, and risks grow, organizations face what's known as the Red Queen Effect: They must continually invest in stronger data security and capabilities not just to get ahead, but simply to keep pace. To innovate with AI, organizations have to divert more resources into security, compliance, and governance. Without those guardrails, innovation itself becomes a liability.

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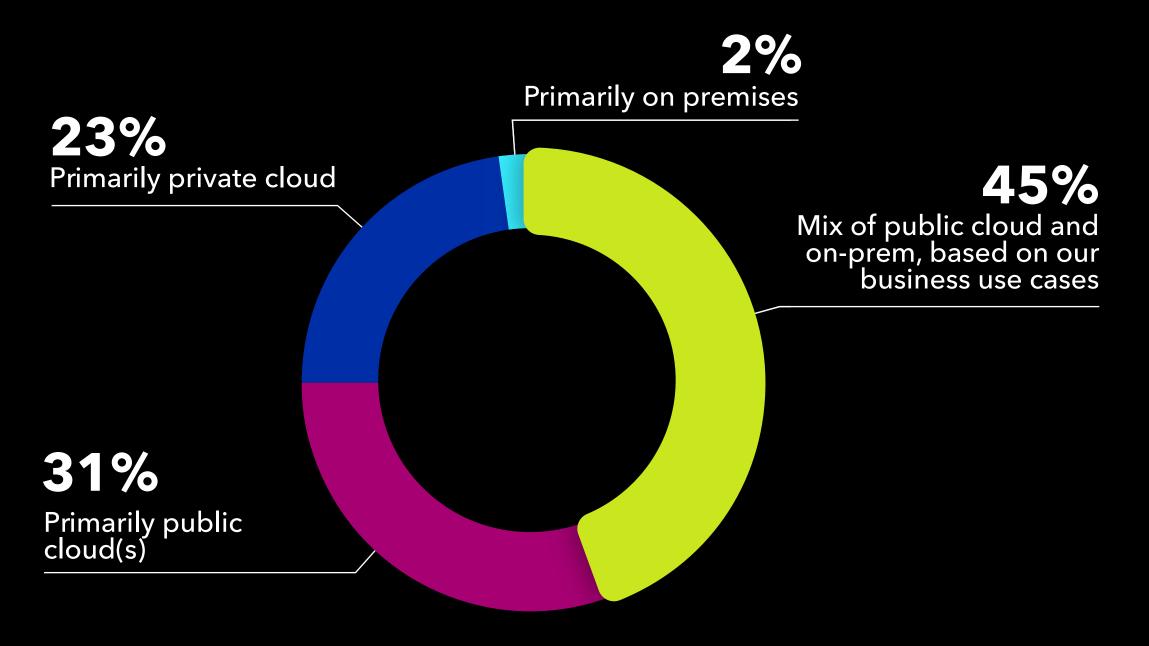
# THE FAST TRACK TO SCALABILITY

Now that organizations are confidently deploying and gaining value from Al, what's next? As data volumes grow and Al use accelerates, leaders are focused on scaling to meet demand while maintaining the flexibility and agility needed to adapt to a constantly changing environment.

#### TOWARD FLEXIBLE FUTURES

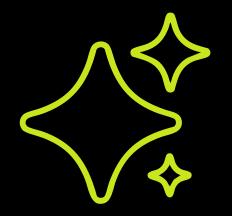
The cloud vs. on-prem vs. hybrid debate continues, though the argument for flexibility, in whatever form, seems to be winning.

### Current deployment strategies in use today as reported by data and IT leaders:





The biggest movers YoY for top data & analytics priorities in the next 12-18 months:



Implementing AI/ML capabilities



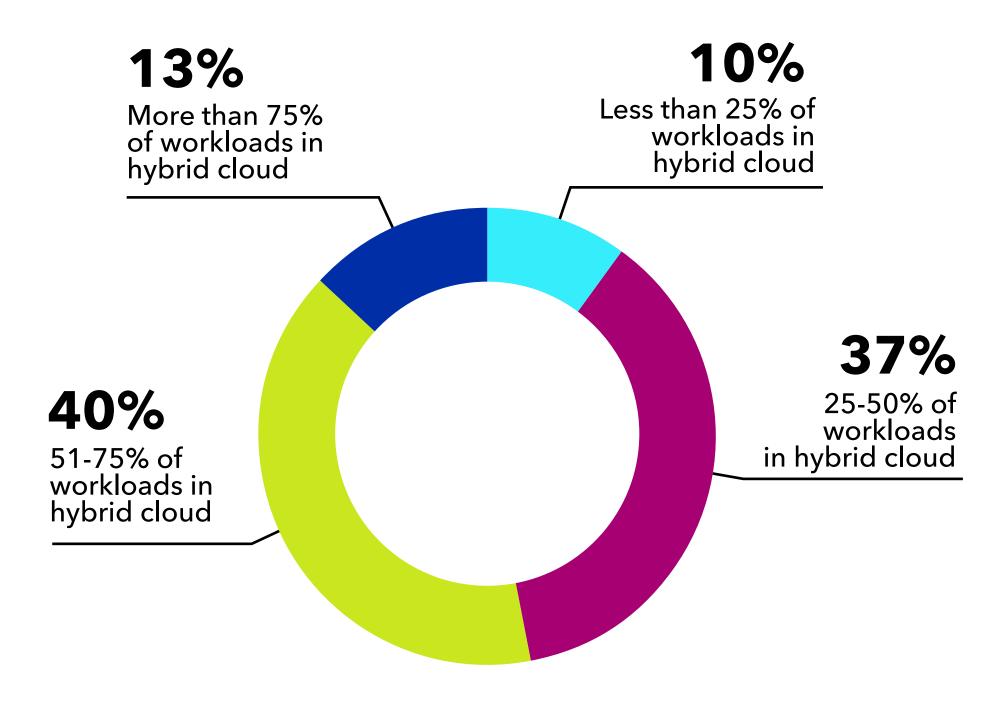
Reduced, predictable cost



On-prem solutions

Compared to the last two years, the number of leaders prioritizing cloud-only data analytics solutions decreased by 13% in 2025.

### Anticipated percentage of AI/ML workloads deployed in hybrid cloud within 3 years:



Among respondents, those from large organizations are most likely to say they are moving workloads on-premises or into hybrid environments.

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#### THE ROAD CONTINUES

To position for long-term growth, leaders are working to overcome scalability challenges, enable flexibility, and capitalize on always-on real-time analytics and intelligence.

#### Scaling Up



Since last year, the challenge of scaling data management and analysis across users and lines of business has grown:

11%

Scaling to support more users across the organization

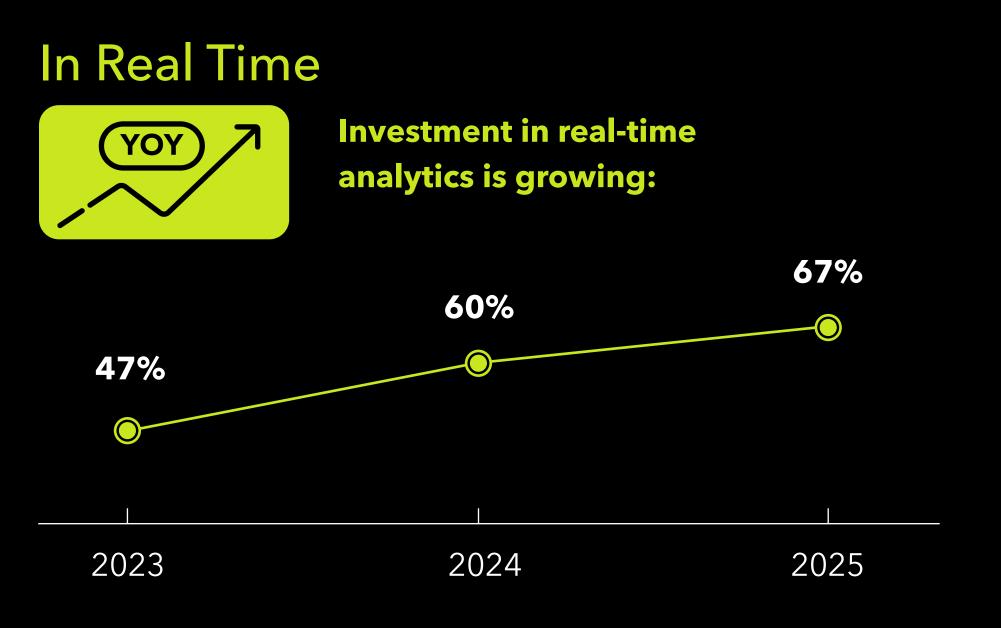
**1**6%

Scaling to support more lines of business

After data quality and preparation, leaders see **scalability of existing data analytics solutions as their biggest barrier** to Al and ML investment.

#### Flex Mode

A majority of data and IT leaders say the need for **strategic flexibility** is driving changes in their data deployment strategies, alongside security, compliance, and data performance optimization. This response came most often from C-suite respondents, indicating top leadership may be focused on long-term adaptability while directors concentrate on ensuring smooth execution.



Real-time operational intelligence is the number one capability leaders plan to implement in the next 12-18 months.

"Ensuring accurate, complete, and timely data for over half a billion global entities tests the limits of legacy systems. Compensating for explosive data surges can drive up costs, while inaction risks data degradation and service disruption. Industry leaders must bake scalability into their data and analytics platforms right from the start, selecting solutions and architectures that handle massive growth and complexity without missing a beat."

Jim Martone, VP of Engineering at Dun & Bradstreet &
 Ocient Advisory Board Member

#### WHAT DOES IT MEAN?

Instead of locking into fixed use cases, organizations are building systems that can evolve with growing datasets, regulations, and AI/ML workloads. This reflects a broader industry acknowledgement that AI is advancing so rapidly that **inflexible infrastructure choices can quickly become anchors rather than accelerators.** By designing around flexibility, organizations can gain greater control over their data – particularly sensitive data or data subject to complex compliance requirements – and drive down costs.

# FROM MOMENTUM TO MATURITY

In today's AI reality, proven promises of efficiency and ROI are giving leaders the confidence to move from roadmaps to the real world. But AI innovation doesn't stop at implementation. Now, leaders must prepare for another new era: turning AI momentum into enterprise-wide AI maturity.

Through our survey results, we see leaders signaling strength and foresight. Yet beneath the surface, their data pipelines are being tested end-to-end, from foundational infrastructure to implementation processes and future scalability capabilities. Fissures triggered by the shift from experimentation to execution could turn into gaps if left unaddressed.

Reaching full activation will require complete alignment across strategy, technology, and execution. **Going forward, leaders are investing in solutions that will deliver on that vision:** 

- A made-for-Al data stack
- Secure infrastructure that scales with growing data
- Adaptable systems and deployment models
- The talent, time, and expertise to sustain progress

When infrastructure, implementation, and growth strategies work seamlessly together, you can advance to the next stage of impact. **Learn more at <u>ocient.com</u>** 

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Ocient partnered with Propeller Insights to survey 531 data and IT leaders responsible for managing workloads of more than 150 terabytes or hundreds of billions of records. Respondents included full-time directors, executives, and C-suite members from organizations reporting annual revenues of more than \$50 million. **Participants represented more than 15 industries, including:** 

- AdTech
- Energy and utilities
- Financial services and insurance
- Government and public sector
- Healthcare, life sciences, and pharmaceuticals
- Manufacturing
- Retail, CPG, and ecommerce
- Telco and CSP

To balance meaningful insights with responsible interpretation where sample sizes were smaller, this report emphasizes comparisons between segment-specific responses and overall survey results where relevant.

### GET TO KNOW OCIENT

Data and IT leaders know big data is only getting bigger. That's why we built the Ocient Hyperscale Data Warehouse<sup>TM</sup>: to maximize data performance, lower total cost of ownership, and optimize resource and operational efficiency for data and AI workloads.

#### Why Ocient?

- Consolidate powerful data integration and transformation, real-time analytics, OLAP workloads, geospatial analytics, and predictive AI/ML capabilities into a single solution
- Ensure predictable spend on your most challenging workloads
- Enhance data management, data science, and operational analytics environments
- Deploy in the environment best suited to your business needs
- Retire legacy solutions that are difficult or impossible to scale
- Access on-demand support for systems administration and day-to-day solutions management

#### **Simplify Your Data Ecosystem**

- Deliver 100x faster performance in a system footprint that's up to 90% smaller and up to 90% less expensive
- Develop, train, and optimize machine learning models right in the database
- Prioritize and execute multiple, mixed workloads within tiered service classes using built-in workload management capabilities
- Streamline data ingestion with native support for traditional ETL workflows, ELT pipelines, and SQL-based transformations during streaming ingest

Changing platforms can seem like a monumental task. Not sure where to start? With the Ocient **Customer Solutions and Workload Services** offering, you save precious engineering time and resources by tapping into Ocient's deep, multi-disciplinary industry expertise.





Beyond Big Data: From Roadmap to Reality

<u>ocient.com</u>