



Build a Winning AI Offense:

C-Level Strategies for an ML-Fueled
Revenue Engine

Executive Summary

This survey report examines the attitudes of Chief Data Officers (CDOs) and Chief Data Analytics Officers (CDAOs) towards the successes and challenges of data science. The report is based on a survey of 100 CDOs and CDAOs at US-based companies with over \$1 billion in annual revenue.

The study, commissioned by Domino Data Lab and conducted by Wakefield Research in December 2022, found that business leaders are increasingly looking to data science as a key revenue engine and a driver of their innovation. The role of CDOs and CDAOs is evolving to emphasize new business value, and it is no longer just about looking into the past but rather looking into the future by using exponentially growing volumes of data.

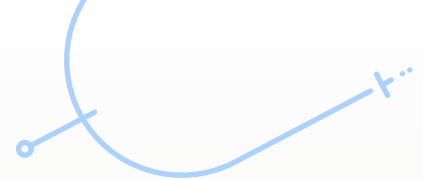
Findings show that, while expectations are high, **investment commitments fall short**. Data science and AI/ML teams remain under IT budgetary control. Data execs often rely on IT to make consequential decisions in a fast-moving environment. When following this route, the majority of these enterprise analytics leaders find they are inadequately resourced to deliver on what leadership wants from AI and ML innovation.

Underinvestment in people, process and technology is a major side effect of this corporate structure. Data scientists therefore lack the toolsets and infrastructure necessary for them to do their job. This results in major talent retention and hiring challenges, further exacerbating data science teams' ability to deliver. More importantly, the lack of access to proper tool sets **increases the risk and exposure** to governance and responsible AI issues.

In conclusion, the report suggests that organizations which lack urgency and commitment to effective people, processes, and supporting tools — like AI CoEs and ML platforms supporting hybrid- and multi-cloud infrastructure — will likely **lag behind market leaders**.

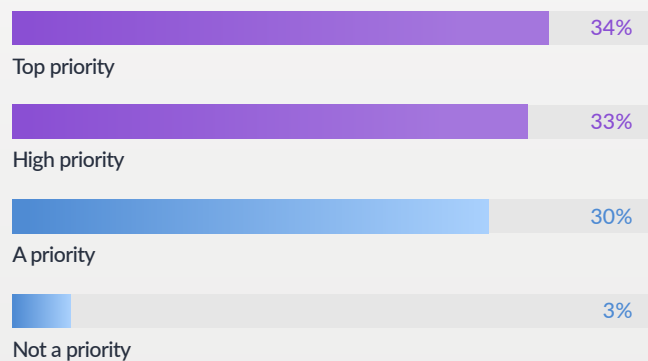
5 Key Findings

- 01** CDO/CDAOs are shifting focus to business value creation — as part of this, AI is now a key revenue and innovation engine. The experiments are over. Data is less about analyzing past performance and more about charting a path to future revenue growth.
- 02** While corporate leadership expects to see results, data science budgets remain firmly under IT control. IT now has to balance data science innovation investments against its traditional expenditures in security, infrastructure and data.
- 03** Limited data science platform resources - infrastructure, data and tools - limit data science and AI/ML's organizational transformation potential.
- 04** Governance and responsible AI risks are increasing as models are rolled out without consistent oversight and technology underpinnings.
- 05** Companies that cannot deliver AI/ML or data science models rapidly face existential competitive threats.



CDOs/CDAOs are Shifting Focus to Business Value Creation

Data Leaders Prioritize a Shift to “Offense”

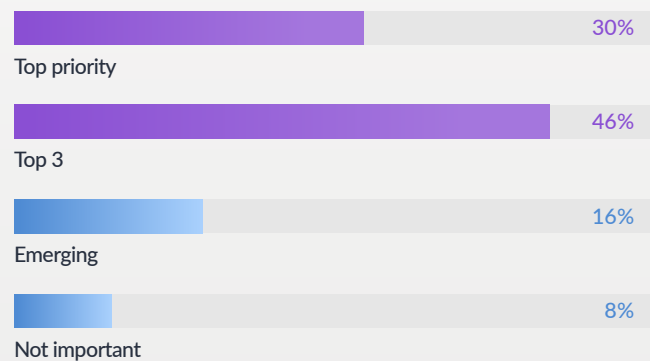


CDAOs want to drive innovation

CDAOs are shifting data posture from defensive (data management) to offensive, driving new business and impacting corporate results.

A large majority of CDOs and CDAOs (67%) are now saying it's time for them to take the reins from IT – or else fall behind in data science and be stuck at a competitive disadvantage.

Priority of Driving New Business Results using AI/ML



76% of Data Science Executives' (DSEs) “offense” = AI/ML

More than **3/4 (76%) of data science executives (DSEs)** see driving new business results with AI/ML as at least a TOP-3 priority for 2023.

For **nearly 1 in 3 (30%) CDOs and CDAOs**, this is #1 on their priority list for this year.



Leadership Expectations vs. IT Decision-Making

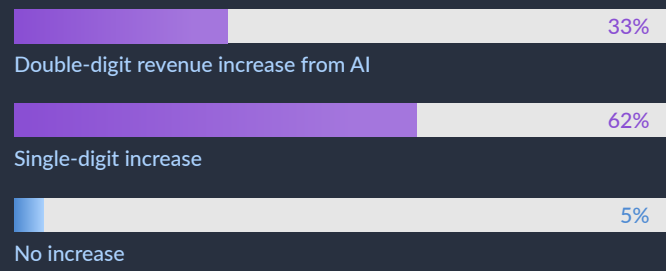
Boards expect transformative results, but leaders lack the data science resources

Nearly all (95%) data execs say their company leadership expects investments in AI and ML applications that will result in a revenue increase—including a third (33%) who expect a double-digit increase.

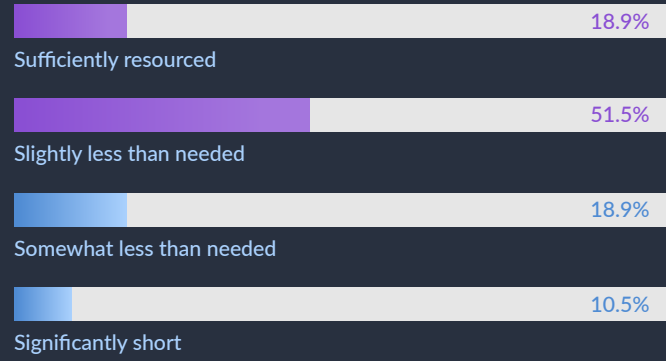
But in order to make money, CDOs and CDAOs need to get money.

- Only 19% report they have the resources they need to meet these expectations.
- More than a quarter (29.4%) say they have a meaningful shortage to achieve these goals.
- A significant portion (81%) of CDOs/CDAOs lack the ability to fully measure the impact an AI/ML project had on the bottom line

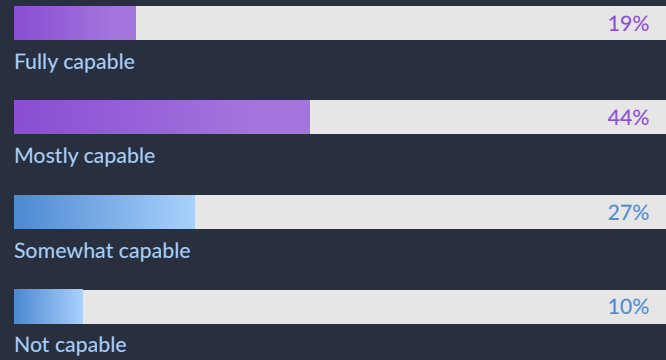
Board of Expectations of AI/ML-driven Revenue Boost



Data Science Team Resources to Meet Leadership Expectations



Flying Blind: CDOs/CDAOs' Toolset Capability to Measure the Business Impact of AI/ML



Leadership Expectations vs. IT Decision-Making

Struggle for Budget

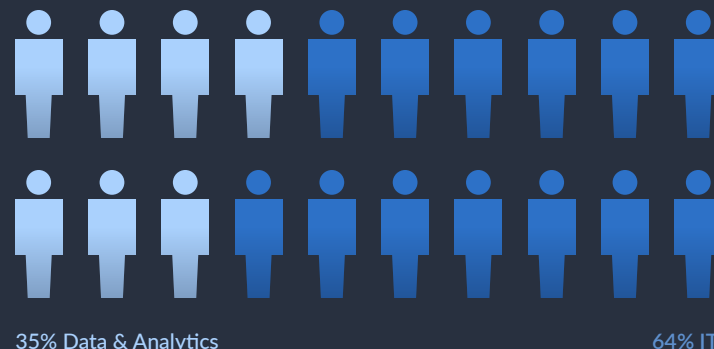
IT now has to prioritize data science innovation investments against its traditional expenditures in security, infrastructure and data.

64% say the IT department makes the majority of their organization's data science platform decisions, not the data and analytics team. The respondents estimated that **56% of data science platform decisions are made by IT.**

It's not just about competing for control, but also competing priorities. **Almost all (99%)** CDOs and CDAOs agreed that it is difficult to convince IT to focus their budget on data science, ML and AI initiatives vs. traditional IT areas, such as security, governance and interoperability.

** One respondent of 100 indicated data science budget decisions are split evenly across teams.*

Team Making Majority of Data Science Platform Decisions *



of CDOs/CDAOs find it difficult to convince IT to focus their budget on AI.

People and Platform Problems Plague AI Progress

Data execs unanimously agreed that providing researchers with their preferred tools was critical for AI/ML and data science initiatives, supported by a center of excellence.

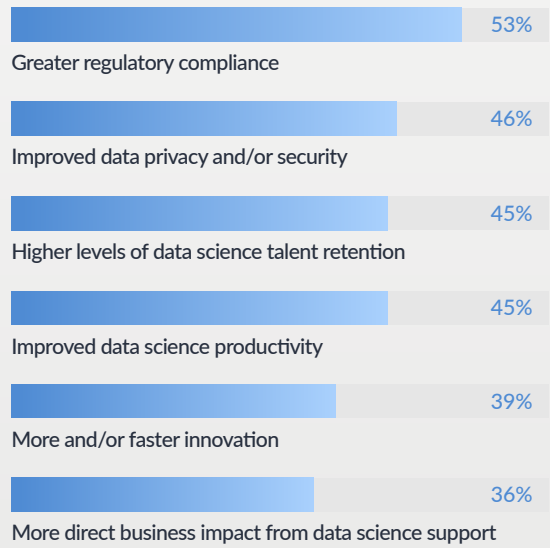
Talent Shortages Hinder AI Evolution



People

87% of CDAOs and CDOs believe their inability to recruit and backfill data science talent is hindering their companies' evolution into data and analytics-driven organizations.

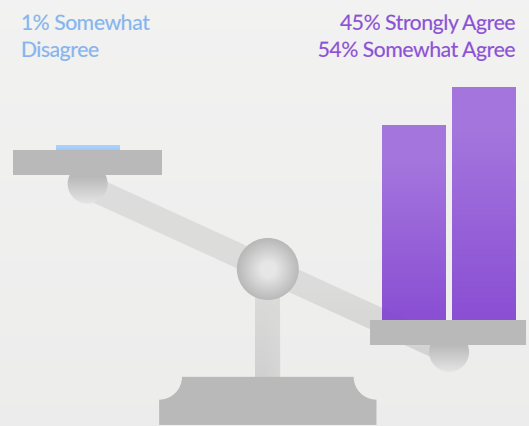
Compliance, Security and Productivity Also Lead Process Needs



Process

Data execs look for MLOps processes, which often power AI CoEs, to provide automated governance capabilities.

Hiring and Retention of Data Scientists is Impacted by Tool Choice



Technology

Teams need to use the best tool for the job, not the one they are necessarily given: 99% of data execs also agree that not providing talent with their preferred tools of choice negatively impacts the ability to hire, retain and/or upskill data science talent.

Everyone is Suffering from Bad AI

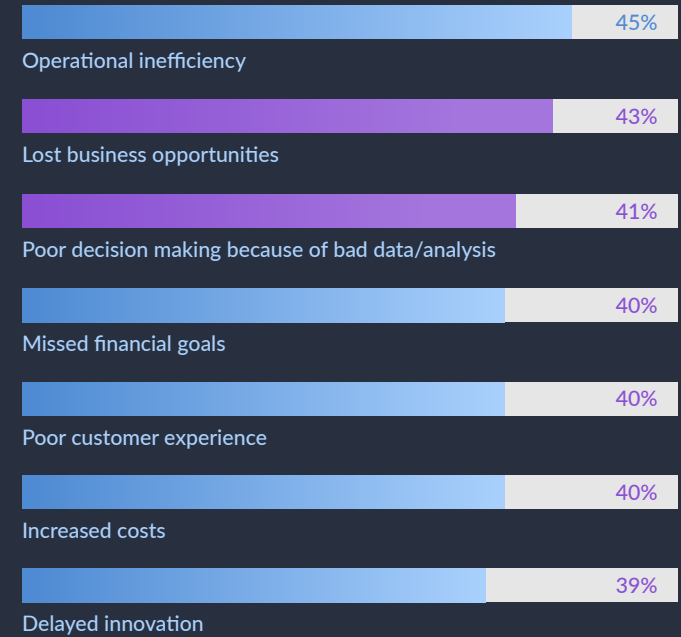
Waste, errors and missed opportunities

Governance and Responsible AI risks are increasing as models are rolled out without consistent oversight and technology underpinnings. **Fully 100% of CDOs and CDAOs** have experienced negative consequences of poorly trained models.

Furthermore, respondents unanimously (100%) said their organizations have experienced negative consequences due to challenges developing and operationalizing their data science models and AI/ML applications.

- **43% said** they have lost business opportunities, and **40% have experienced increased costs** and missed financial goals.
- **41% admitted** that they have made poor decisions based on bad data or analysis, and nearly as many (**40%**) report poor customer experiences.

Impact of Poor AI/ML and Data Science Application Operationalization



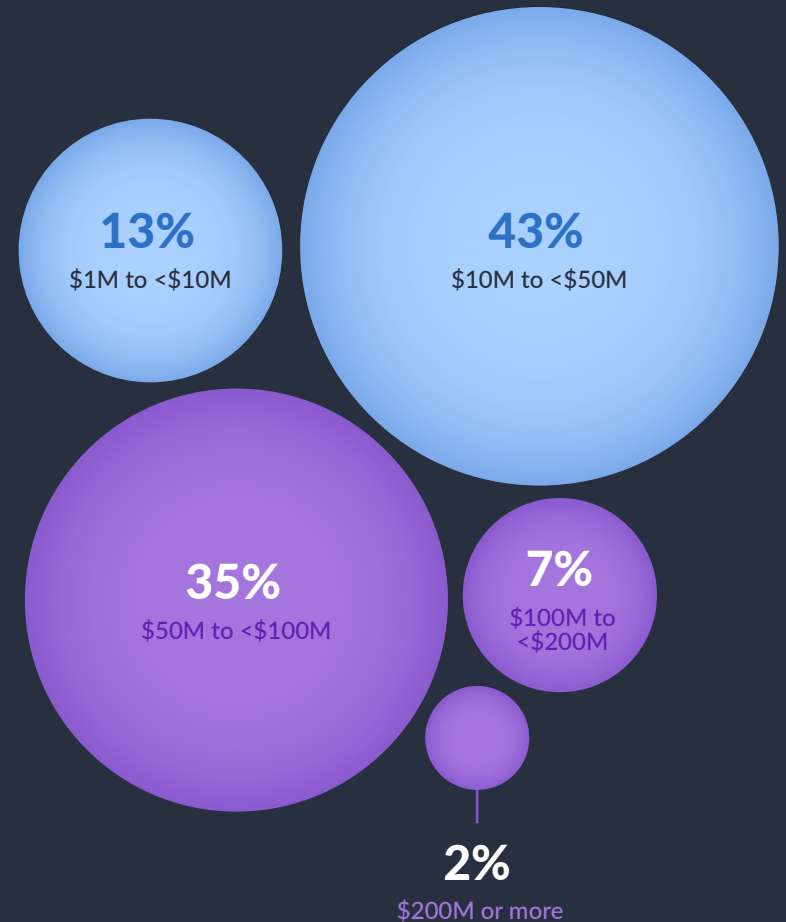
Everyone is Suffering from Bad AI

Big losses await poorly governed models

CDOs and CDAOs have their eyes on many risks, but model governance is a major money matter. Today's vast and quickly evolving regulatory landscape, paired with the high stakes of many enterprise data science initiatives, mean that a lack of trustworthy AI could cost their companies tens of millions.

- **44% of CDOs and CDAOs** believe failure to properly govern their AI/ML applications would mean losses of \$50 million or more to their companies.
- **87% predicted losses** of at least \$10 million for their companies, and none predicted losses beneath \$1m.

Revenue Loss Potential Due to Governance Challenges



Keeping up with Competitors' Rapid Model Delivery

Companies that cannot deliver AI/ML or data science models rapidly face an existential competitive threat

Finally, we looked at how DSEs can best skate to where the puck is headed. As we head into 2023, the promise of generative AI launches execs into a sprint to make use of new, advanced algorithms upon their own data.

With this in mind, we asked CDOs and CDAOs what will define winners and losers, when the dust settles. The results suggest success relies heavily on the velocity of model development and deployment, and companies' ability to do so in accordance with the laws of physics and the laws of the land.

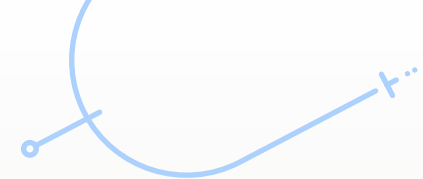


Nearly all CDOs and CDAOs agree that the companies that bring AI and ML solutions to market fastest will be the ones to survive and thrive in the upcoming economic uncertainty.



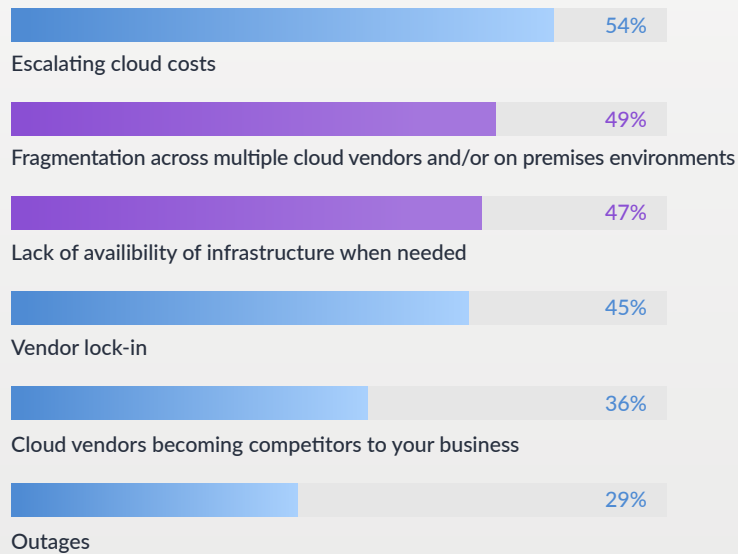
Data locality is a universal challenge, with 69% designating it as a barrier for progress.





Keeping up with Competitors' Rapid Model Delivery

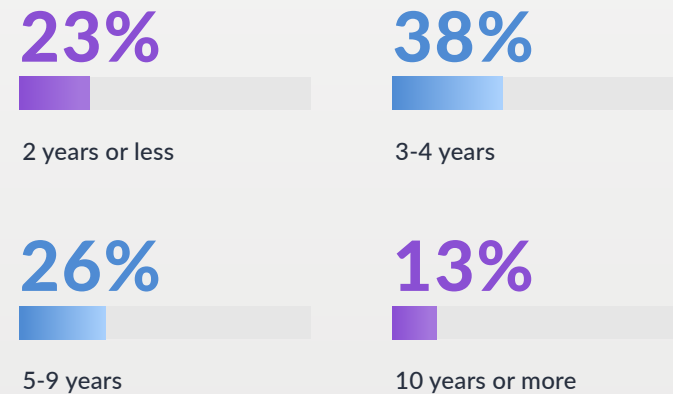
Most Pressing Cloud Concerns



Cloud concerns

Cloud costs (54%) and workload fragmentation (49%) topped data execs' lists of concerns over the future use of cloud providers to train or run models.

How far behind are companies that have not implemented AI and ML platforms that support hybrid- and multi-cloud environments?



Falling behind

4.89 Years – The average gap between companies with AI/ML platforms enabling hybrid-and multi-cloud model training/deployment and those who don't is nearly half a decade.



Additional Information

Domino Data Lab provides a number of resources for data science leaders and practitioners, and for IT leaders who support and promote data science programs, including the following:

- [The Data Science Innovator's Playbook](#), a look at top innovators in several different industries
- The [Top 5 AI Considerations for Chief Data and Analytics Executives](#) looking to accelerate enterprise data science in the hybrid cloud with MLOps
- The Domino Data Lab [blog](#), featuring technical content, thought leadership, and strategic insights on the effective use of data science in all facets of business
- Specialized insights and help for [Data Science Executives](#) and for specific types of business, including [life sciences](#), [insurance](#), [financial services](#), and more

- Information on ways that the [Domino Enterprise MLOps Platform](#) accelerates time to value for companies looking to unleash data science at scale
- [Case studies](#) documenting how companies like yours have employed Enterprise MLOps to attack the world's biggest challenges and realize outsized returns
- Forrester's report, "[The Total Economic Impact™ of the Domino Enterprise MLOps Platform](#)," which explains how Domino drives 542% ROI for customers
- A white paper introducing [Enterprise MLOps](#), a holistic approach to scaling the production of models across modern enterprises
- The [Data Science Leaders podcast](#), featuring in-depth conversations with executives across industries

Methodology

The Domino Data Lab survey was conducted by [Wakefield Research](#) among 100 US Chief Data Officers or Chief Data Analytics Officers at companies with \$1b+ annual revenue, between December 5th and December 18th, 2022, using an email invitation and an online survey.

The margin of error for the study is +/- 9.8%.

About Domino

Domino Data Lab provides the Enterprise MLOps platform trusted by over 20% of the Fortune 100. Our products enable thousands of data scientists to develop better medicines, grow more productive crops, adapt risk models to major economic shifts, build better cars, improve customer support, or simply recommend the best purchase to make at the right time.

At Domino, our mission is to unleash the power of data science to address the world's most important challenges.

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