DOMINO | Capgemini

GENERATIVE AI
FOR A COMPETITIVE PRODUCT STRATEGY

Executive findings to inform strategy, governance, and AI investments

EXECUTIVE SUMMARY

This ebook examines how Generative AI has shifted the focus of business executives such as Chief Data Officers (CDOs) and Chief Data Analytics Officers (CDAOS), balancing opportunistic use cases for building an AI-fueled competitive advantage with the challenges faced in responsibly operating and scaling AI. It combines findings from the Capgemini Research Institute with recent independent Domino Data Lab reports to evaluate how Generative AI has renewed the focus on building and operating AI at scale.

While expectations (especially from Generative AI) are high, particularly for product and service development, concerns over governance, security and responsible AI has most organizations fine-tuning open-source/commercial Generative AI models, with strategies looking towards fully in-house large language models (LLMs). There are promising applications of Generative AI for product design and customer experience, in-house

AI development brings massive challenges. Investment commitments fall short - particularly in the resources enterprise analytics leaders need to deliver on the promise of fine-tuned or in-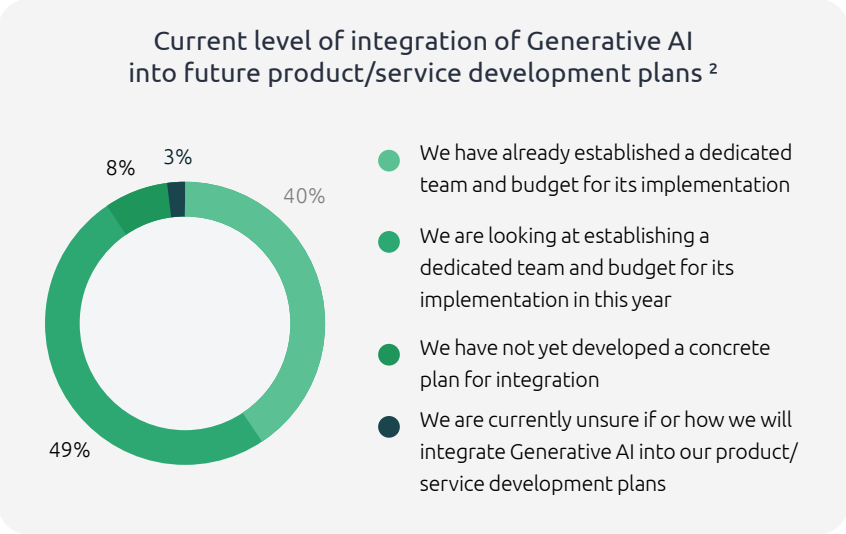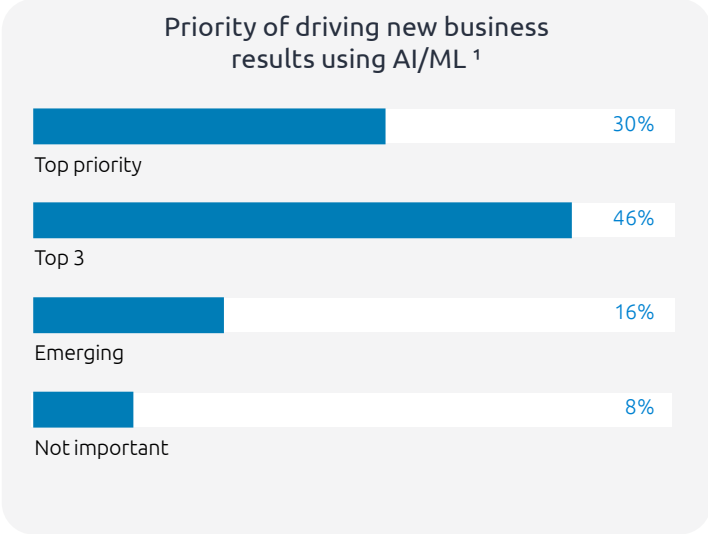house developed Generative AI models. Underinvestment in people, process, and technology is all-too-common. Data scientists therefore lack the data, toolsets and infrastructure necessary for them to do their job. This results in major talent retention and hiring challenges. More importantly, the lack of access to proper tool sets increases the risk and exposure to governance and responsible AI issues.

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

5 Key Findings

01 Generative AI has accelerated the trend of CDO/CDAOs shifting focus to business value creation, spurring new levels of investment.

02 Governance, responsible AI, and security concerns have industry leaders building strategies for in-house LLM fine-tuning and development.

03 While Generative AI brings massive competitive advantage to product design and customer experience, operationalization is difficult - and poorly governed models introduce massive risk.

04 Critical shortages in centralized processes for collaboration and shared best practices, lack of unified AI platforms (supporting AI infrastructure, data, and tools), and talent bottlenecks limit Generative AI's transformational potential.

05 Companies that cannot build and operate their own AI models rapidly face existential competitive threats from those already integrating these technologies into product and service offerings.

CDOS/CDAOS TURN TO VALUE CREATION GENERATIVE AI IS THE PATH

Priority of driving new business results using AI/ML [1]

Top priority	30%
Top 3	46%
Emerging	16%
Not important	8%

Current level of integration of Generative AI into future product/service development plans [2]

8%   3%   40%
49%

- We have already established a dedicated team and budget for its implementation
- We are looking at establishing a dedicated team and budget for its implementation in this year
- We have not yet developed a concrete plan for integration
- We are currently unsure if or how we will integrate Generative AI into our product/ service development plans

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.

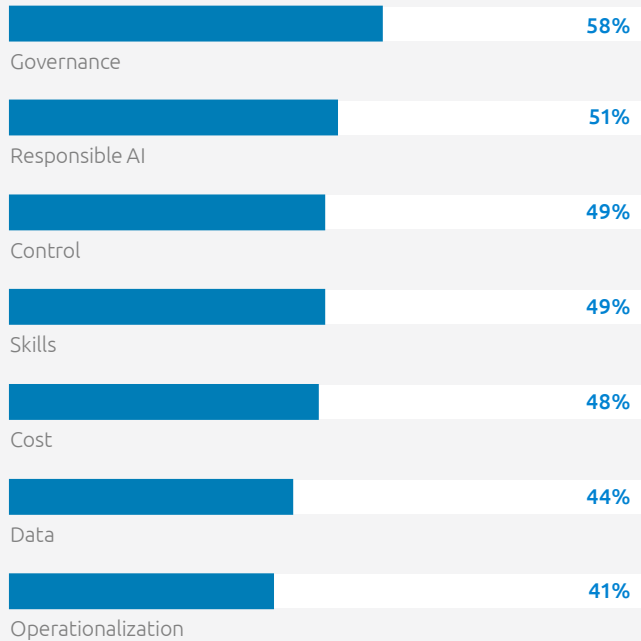For nearly 1 in 3 (30%) CDOs and CDAOs, this is #1 on their priority list for this year.

98%
of organizations say Generative AI is a topic of discussion in their boardrooms.

40%
of organizations have already established teams and budget for Generative AI.

GOVERNANCE, RESPONSIBLE AI, & SECURITY ARE TOP CONCERNS

What are the biggest challenges to driving impact with Generative AI? [3]

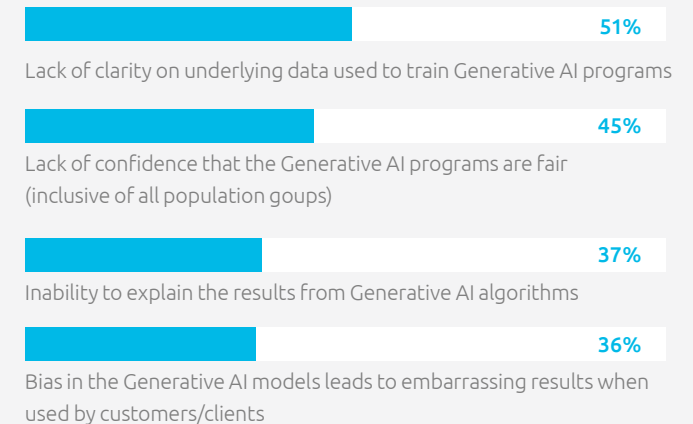|	
Governance	**58%**
Responsible AI	**51%**
Control	**49%**
Skills	**49%**
Cost	**48%**
Data	**44%**
Operationalization	**41%**

Despite the Generative AI hype, governance poses a significant challenge

58% of respondents (and 76% of C-level/VP data science executives) called governance one of their most significant hurdles.

Trust and responsibility must be built into AI Systems

Intellectual property, bias, inability to explain results, and inherited risk from underlying data remain top of mind.

Percentage of organizations that say the following are challenges for implementing Generative AI [4]

Lack of clarity on underlying data used to train Generative AI programs	**51%**
Lack of confidence that the Generative AI programs are fair (inclusive of all population goups)	**45%**
Inability to explain the results from Generative AI algorithms	**37%**
Bias in the Generative AI models leads to embarrassing results when used by customers/clients	**36%**

BRINGING LMM FINE-TUNING AND DEVELOPMENT IN-HOUSE

AI Regulation is on the horizon, data regulation is here

The E.U. AI Act, approved by European Parliament, in June 2023, will require Generative AI tool developers to submit their systems for review and publish copyrighted data used for model training before commercial release. [5,6]
Data privacy regulations have also renewed focus on data residency (where is the data?) and data sovereignty (data is regulated by the laws of the country in which it is collected and processed).

"Through 2026, nearly all multinational organizations will invest in local data processing infrastructure and services to mitigate against the risks associated with data transfer." [7]
As organizations invest in controlling data, they must also focus on controlling AI - by developing or fine-tuning open source or commercial LLMs themselves.

AI Teams Need Control for Responsible AI [8]

Balancing adoptions speed and responsible AI obligations highlight the importance of customization and control in AI operations.

In the near term, 42% of respondents plan to fine-tune commercial and open-source Generative AI models.

Longer-term, as they build in-house strategies and gain expertise, many plan to fully develop Generative AI models from the ground up.

94%

Of AI teams believe they need to enhance off-the-shelf Generative AI offerings for their use cases

39%

Over one-third say they plan to steer their efforts fully towards in-house development of Generative AI.

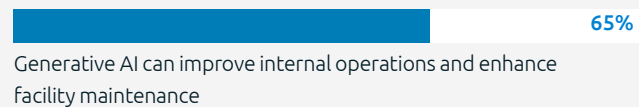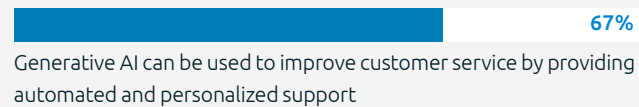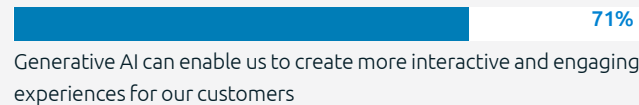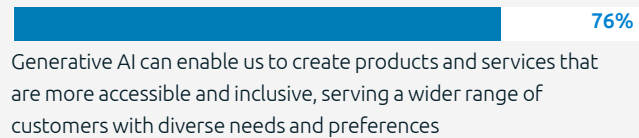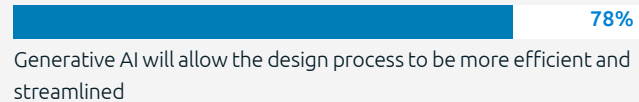# GENERATIVE AI BENEFITS PRODUCT DESIGN & CUSTOMER EXPERIENCE...

Generative AI benefits outweigh the risks

74% of executives believe the benefits that Generative AI brings outweighs the associated risks.

Anticipated benefits of Generative AI extend into product design and customer experience.

Priority of driving new business results using AI/ML [9]

78%

Generative AI will allow the design process to be more efficient and streamlined

76%

Generative AI can enable us to create products and services that are more accessible and inclusive, serving a wider range of customers with diverse needs and preferences

71%

Generative AI can enable us to create more interactive and engaging experiences for our customers

67%

Generative AI can be used to improve customer service by providing automated and personalized support

65%

Generative AI can improve internal operations and enhance facility maintenance

Fast movers are already capturing value [10]

Even before the recent Generative AI hype, Capgemini Research Institute analyzed the benefits gained by organizations with well-defined visions and strategies for intelligent products and services - data-fueled, smart, connected products (the precursor to Generative AI-powered products).

83% of fast movers have seen a **reduction in cost of servicing** due to intelligent products & services.

83% of fast movers have seen **improved customer experience.**

79% of fast movers have **accelerated R&D** for improvements to existing products and services.

...EVEN THOUGH IN-HOUSE AI DEVELOPMENT BRINGS CHALLENGES

Insufficient technology and poorly governed data and AI models introduces risk, impeding product and service innovation.

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

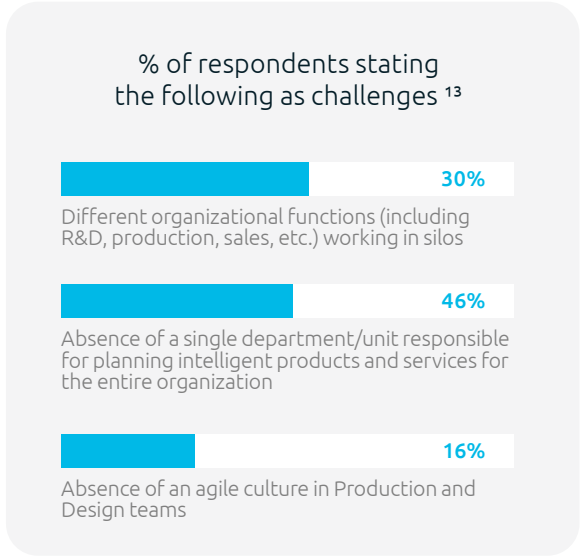## Big losses await poorly governed models [11]

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.

Initiatives get stuck at pilot or PoC stages [12]

Collaboration, skills, data, and technology-related challenges impede progress for intelligent products and services.
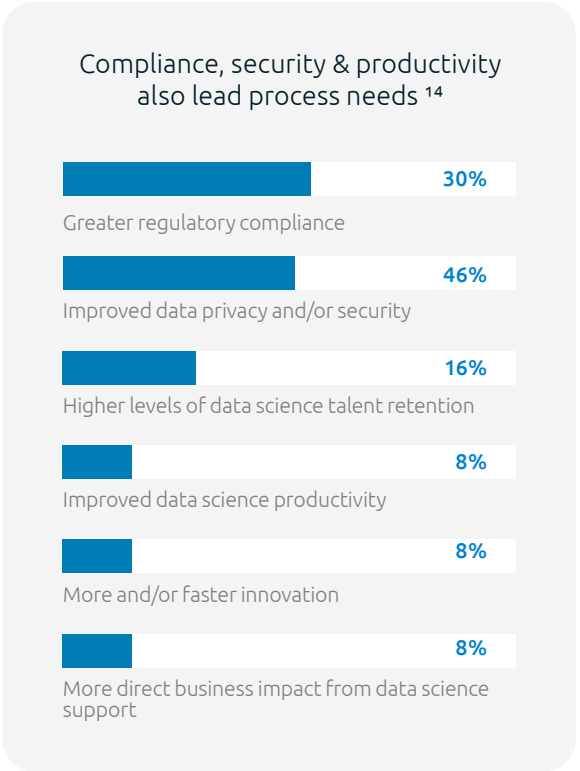

- 7%
- 13%
- 31%
- 48%
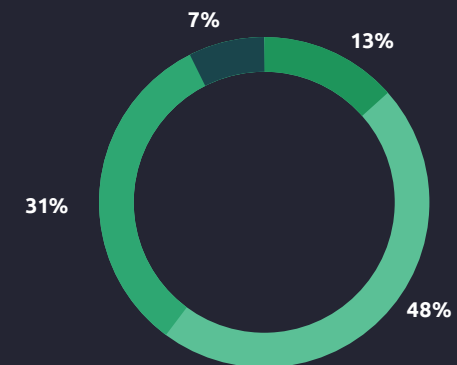
- ● Identified certain application areas/use cases
- ● Implemented pilots/proofs of concept of the identified use cases for at least one product/business line
- ● Partially scaled the identified use cases for at least one product/service/business line
- ● Fully scaled the identified use cases for at least one product/service/business line
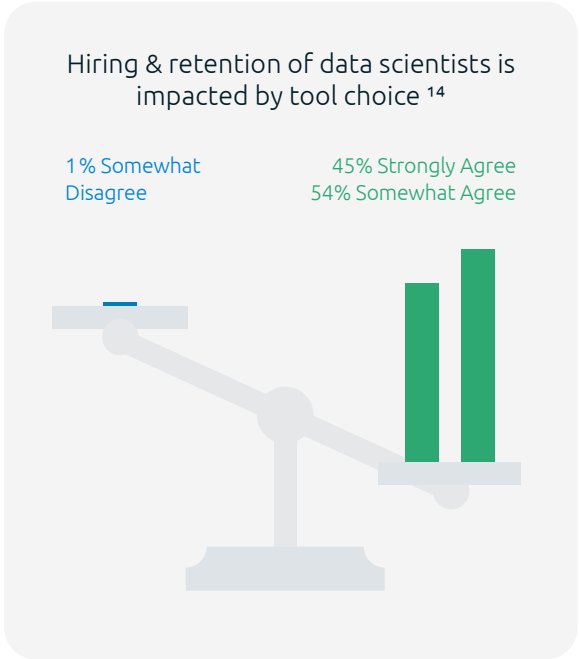
...AND CRITICAL SHORTAGES PLAGUE AI INNOVATION

% of respondents stating the following as challenges [13]

30%
Different organizational functions (including R&D, production, sales, etc.) working in silos

46%
Absence of a single department/unit responsible for planning intelligent products and services for the entire organization

16%
Absence of an agile culture in Production and Design teams

Lack of Centralization

Collaboration, skills, data, and technology-related challenges put the brakes on progress.

Compliance, security & productivity also lead process needs [14]

30%
Greater regulatory compliance

46%
Improved data privacy and/or security

16%
Higher levels of data science talent retention

8%
Improved data science productivity

8%
More and/or faster innovation

8%
More direct business impact from data science support

Lack of Process

CDAOs look for unified MLOps platforms processes to provide automated governance capabilities, as well as the tools to improve AI productivity.

Hiring & retention of data scientists is impacted by tool choice [14]

1% Somewhat Disagree

45% Strongly Agree
54% Somewhat Agree

Talent Bottleneck

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.

LOOKING AHEAD: KEEPING UP WITH COMPETITOR'S DELIVERY

Leaders integrate data about product, usage, and customer behavior into ongoing product improvements [15]

71%

of Leaders use data from the field to carry out software updates and for future product iterations

68%

of Leaders harness product usage and performance data to improve product quality

59%

of Leaders use product usage and performance data to create new products/services

Companies that cannot deliver products leveraging AI/ML or data science models rapidly face existential competitive threat [16]

The promise of Generative AI launches executives into a sprint to make use of new, advanced algorithms upon their own data.

98% of 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 upcoming economic uncertainty.

ADDITIONAL INFORMATION

Dive deeper into the research supporting this book

- *Domino's CDO/CDAO Survey Report*: Build a Winning AI Offense | C-level Strategies for an ML-fueled Revenue Engine. Go deeper into some of the statistics referenced in this ebook. Learn more about organizational challenges posed by IT owning data science platform decisions, the risk of poorly governed AI, and challenges presented by hybrid-/multi-cloud environments.

- Domino's *REVelate* Survey from June of 2023 - a survey of AI professionals leading, developing, and operating AI initiatives across Fortune 500 companies.

- Capgemini Research Institute's *Generative AI In Organizations* report from early 2023 on top use cases across industries.

- Capgemini Research Institute's *Intelligent Products & Services* report from April of 2022.

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:

- Learn how Domino can help you scale Generative AI for the Enterprise: fast, safe, and economical.

- 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

- The *Data Science Leaders podcast,* featuring in-depth conversations with executives across industries

Citations

1. Domino Data Lab & Wakefield Research, Build a Winning AI Offense - C-Level Strategies for an ML Fueled Revenue Engine, May 2023

2. Capgemini Research Institute, Generative AI in Organizations Report, April 2023, N = 800 organizations

3. Domino REVelate survey

4. Capgemini Research Institute, Generative AI in Organizations Report, April 2023, N = 800 organizations

5. The Washington Post, "Europe moves ahead on AI regulation, challenging tech giants' power," June 14, 2023

6. CNBC, "EU lawmakers pass landmark artificial intelligence regulation," June 14, 2023

7. Top 5 Considerations for Data and Analytics Executives, Ventana Research

8. Domino REVelate survey

9. Capgemini Research Institute, Generative AI in Organizations Report, April 2023, N=800 organizations

10. Capgemini Research Institute, Intelligent products and services survey, April–May 2022; N=587 organizations that already have well-defined visions and strategies for intelligent products and services

11. Domino Data Lab & Wakefield Research, Build a Winning AI Offense - C-Level Strategies for an ML Fueled Revenue Engine, May 2023

12. Capgemini Research Institute, Intelligent products and services survey, April–May 2022, N=1,000 respondents from unique organizations that have or are currently building visions and strategies for a move to intelligent products and services

13. Capgemini Research Institute, Intelligent products and services survey, April–May 2022, N=1,000 respondents from unique organizations that have or are currently building visions and strategies for a move to intelligent products and services

14. Domino Data Lab & Wakefield Research, Build a Winning AI Offense - C-Level Strategies for an ML Fueled Revenue Engine, May 2023

15. Capgemini Research Institute, Intelligent products and services survey, April–May 2022, N=1,000 respondents from unique organizations that have or are currently building visions and strategies for a move to intelligent products and services, N=76 organizations who are Leaders

16. Domino Data Lab & Wakefield Research, Build a Winning AI Offense - C-Level Strategies for an ML Fueled Revenue Engine, May 2023

ABOUT DOMINO & CAPGEMINI

" Capgemini's AI, ML, & GenAI experts leverage Domino's enterprise-grade infrastructure for streamlined experimentation, model development, and production-grade coding, while Domino's integrated CI/CD pipeline amplifies development velocity. Moreover, Domino Data Labs enables the hub and spoke model to centralize development, reduce cost, and accelerate delivery with immediate ROI for data science teams, business units, and IT. Domino is the go-to centralized platform for collaboration, best practices, and innovation for any data science practice; including those that are starting to build and operate their own Generative AI models."

KOLIN KONJURA

MLOps and GenAI Lead in AI & Analytics, Capgemini

" Effective GenAI solutions are typically large, complex models comprised of a cluster of smaller but similarly complex models. Putting GenAI models into production can scale very poorly without the proper infrastructure to deploy, and continuously monitor, retrain, and evaluate these solutions. Capgemini is building a strong, deeply-rooted partnership with Domino Data Labs on which to deploy GenAI solutions for customers, giving them the visibility and control they need to generate ROI from their AI solutions."

PAUL INTREVADO

GenAI Delivery Lead, Artificial Intelligence & Analytics, Capgemini North America

" At Domino, we are immensely proud of our collaboration with Capgemini. Their profound expertise in AI, ML, and GenAI, combined with our robust Enterprise AI Platform, not only paves the way for innovative data science solutions but also empowers enterprises to realize tangible results and ROI. Together, we've cultivated an environment where cutting-edge technology meets seamless execution, ensuring that our collective clientele benefits from efficient, scalable, and trustworthy AI solutions. We are excited to push the boundaries of what's possible in AI and remain committed to setting the gold standard in model lifecycle management and time-to-value.

SID KHARE

Global Head of Partnerships, Domino

" Capgemini's collaboration with Domino represents a powerful alliance for the development of enterprise-grade AI/ML solutions. By leveraging Domino's cutting-edge platform for model lifecycle management, Capgemini can streamline the development, deployment, and monitoring of AI models for our clients, all while allowing for effective cost management. This partnership allows us to harness the full potential of AI by ensuring model reproducibility, scalability, and effective governance, ultimately delivering more robust and sustainable solutions to our clients. Together, Capgemini and Domino Data Labs are at the forefront of driving innovation and value in the AI landscape."

AJAY MOHAN

GenAI Lead, Artificial Intelligence & Analytics, Capgemini North America

About Capgemini

Capgemini is a global leader in partnering with companies to transform and manage their business by harnessing the power of technology. The Group is guided every day by its purpose of unleashing human energy through technology for an inclusive and sustainable future. It is a responsible and diverse organization of nearly 350,000 team members in more than 50 countries. With its strong 55-year heritage and deep industry expertise, Capgemini is trusted by its clients to address the entire breadth of their business needs, from strategy and design to operations, fueled by the fast evolving and innovative world of cloud, data, AI, connectivity, software, digital engineering, and platforms. The Group reported in 2022 global revenues of €22 billion.

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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 challenge.

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