Survey Report

State of AI in Financial Services: 2025 Trends
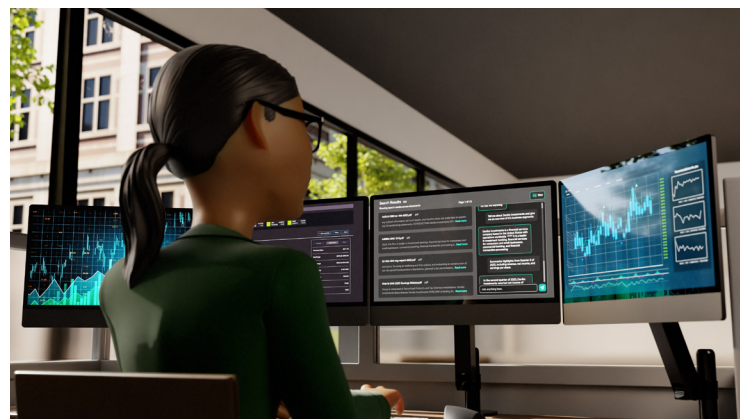
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Key AI Trends for Financial Services in 2025

AI is bringing significant new capabilities to financial services. To better understand how the industry is leveraging AI to transform, NVIDIA has completed our fifth annual State of AI in Financial Services report. This report is based on a survey of approximately 600 global financial services professionals about the trends, challenges, and opportunities for accelerated computing, AI, and machine learning in the industry.

The latest survey results show generative AI standing out as a pivotal technology. Building on the momentum from last year's survey, over half of the respondents currently use generative AI, up from 40 percent last year. Generative AI can quickly generate new content—including text, images, 3D models, video, and more—based on a variety of inputs. This technology is not only enhancing existing applications but is also driving the creation of innovative services and solutions across the financial services sector.

Strategic Infrastructure and Investments

To set themselves apart from the competition, banks and financial services companies are continuing to invest heavily in AI to improve underwriting, enhance customer experiences, reduce risk, and maximize portfolio returns. Survey findings reveal that a significant portion of AI investments will go toward computing infrastructure. These infrastructure investments enable companies to build AI factories—specially built accelerated computing platforms for processing, refining, and transforming vast amounts of data into valuable AI models and tokens. Financial services companies will use these capabilities to bring greater efficiency to operations and enhance services to build a competitive edge.

Key findings from this year's survey underscore the significant impact of AI:

> Investment in AI infrastructure is seeing a robust increase, with **98 percent of management** saying they will further increase spending in 2025.

> **Over half of companies** now view AI as crucial to their future success, indicating growing reliance on AI as a strategic business lever.

> AI challenges are receding, with **50 percent fewer respondents reporting a lack of AI budget** and significantly fewer companies reporting AI data issues.

40% **52%**

respondents currently using generative AI

2023 2024
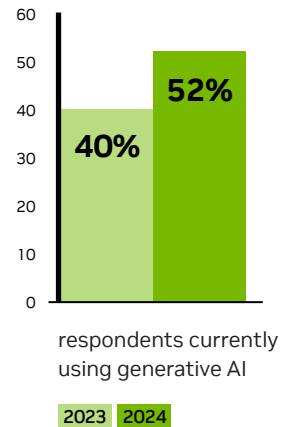
Leading online payment platform PayPal turned to accelerated computing for more efficient data processing and analytics workloads, updating its AI infrastructure to achieve a reduction of up to 70% in cloud costs and 35% in runtime.

Industry Insights and Future Outlook

The 2025 outlook reveals a broadening of AI's role in trading, banking, payments, and fintech, from improving operational efficiencies to enabling new business models and revenue streams. Financial institutions are not only focusing on enhancing customer experiences and cybersecurity but are also increasingly committed to sustainable practices, as evidenced by substantial growth in AI-driven environmental, social, and governance (ESG) and sustainable finance initiatives.

Analysis of this year's survey results highlight four important findings:

> **Maturation of AI use cases:** While firms continue to expand the number of generative AI use cases under evaluation, the penetration rates for a few key use cases indicates maturation in exploration and use of AI.

> **Predominance of data analytics and generative AI:** Data analytics remains the top workload, with generative AI showing significant growth, becoming the second-most utilized workload.

> **Transformational impact of AI:** A significant portion of respondents view AI and generative AI as transformational, with increased integration across various business functions.

> **Diversification of AI benefits:** More than one-third of respondents cited operational efficiencies as a top benefit of AI, while competitive advantage and new business opportunities were also recognized as key benefits.
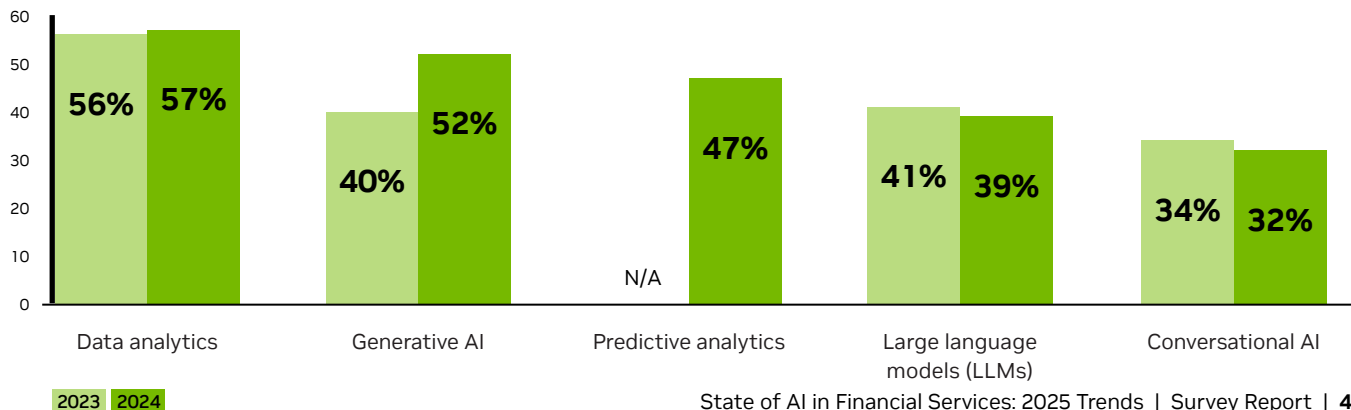
As the industry embraces AI, it must also navigate energy-efficient computing and the development of trustworthy AI to unlock its potential in an ethical and sustainable manner.

AI Use Matures to Deployment of Strategic Use Cases

Over the past 12 months, financial services companies have been consolidating their AI efforts around several core applications. This indicates a shift from AI exploration to a focus on successful deployment of high-value, strategic use cases.

Data analytics remains the predominant AI workload, with companies leveraging this technology to harness vast amounts of data to better detect fraud, personalize services, predict market trends, and manage investment risk. With the most substantial year-over-year (YoY) growth, generative AI emerged as the second-most popular workload, with over 50 percent of respondents using or assessing the technology.

What AI and machine learning workloads is your company using or assessing (select all that apply)?

	Data analytics	Generative AI	Predictive analytics	Large language models (LLMs)	Conversational AI
2023	56%	40%	N/A	41%	34%
2024	57%	52%	47%	39%	32%

A notable 41 percent of management-level respondents now recognize AI and generative AI as transformational forces within their organizations. Financial institutions are integrating AI across business functions, with significant upticks in AI use for risk and compliance, marketing, sales, cybersecurity, and operations.
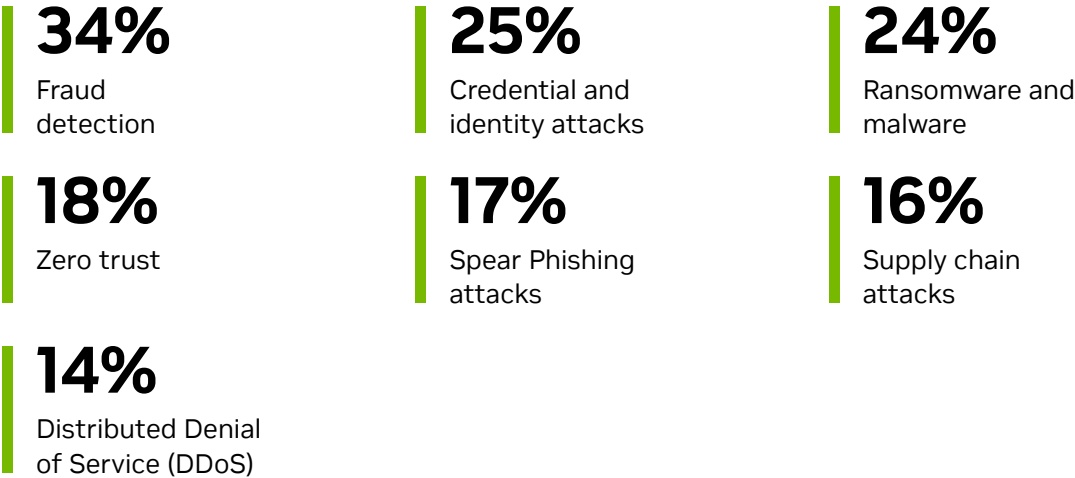
The benefits AI is bringing to business operations are diversifying. While fewer companies are citing operational efficiencies, down slightly from last year, other areas such as employee productivity and new business opportunities are seeing substantial gains. This diversification signals a shift in AI's role, evolving from a tool for efficiency to a catalyst for comprehensive business transformation.

How has AI improved your business operations (select up to two)?

37%
Created operational efficiencies

32%
Created competitive advantage

26%
Improved customer experience

22%
Yielded more accurate models

22%
Improved employee productivity

21%
Opened new business opportunities

Of more than 20 use cases, cybersecurity experienced the highest YoY growth, with more than one-third of respondents now assessing or investing in AI for cybersecurity. The number of respondents expecting to use AI to address spear phishing attacks more than doubled, jumping from 7 percent to 17 percent, signaling a shift in the cyberthreat landscape. Similarly, the use of AI to confront supply chain attacks and Distributed Denial of Service (DDoS) incidents increased, indicating a heightened awareness and proactive stance against these threats.

What cybersecurity challenges are (or will be) addressed by AI within your organization (select the top 2)?

34%
Fraud detection

25%
Credential and identity attacks

24%
Ransomware and malware

18%
Zero trust

17%
Spear Phishing attacks

16%
Supply chain attacks

14%
Distributed Denial of Service (DDoS)

Overall, companies are pinning down and implementing their most strategic AI use cases and using AI to become more resilient in the face of evolving challenges.
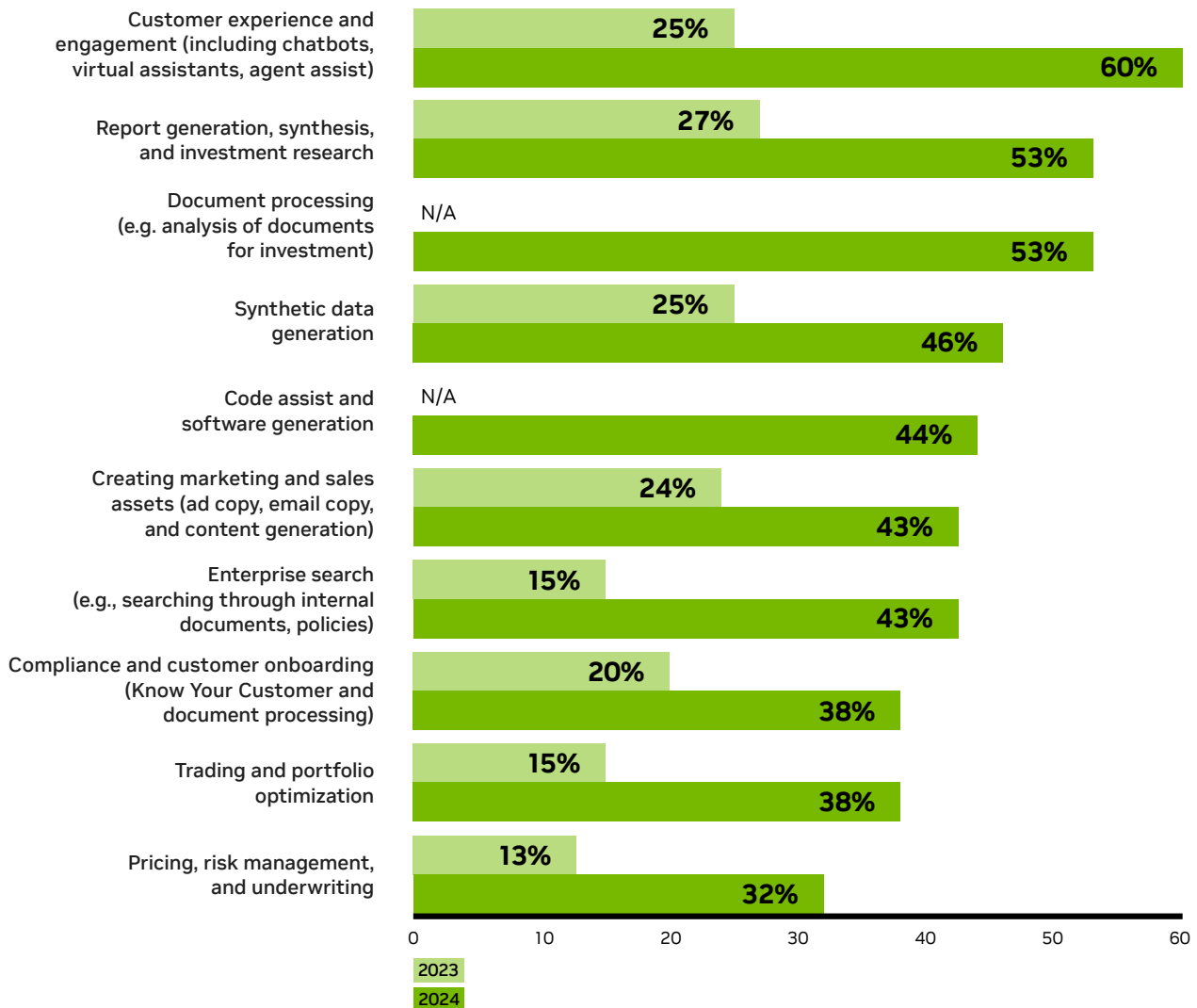
Generative AI Is Driving Industry Transformation

Continuing enthusiasm from last year, generative AI workloads saw the biggest YoY growth and now ranks as the second-most utilized workload after data analytics. Half of management respondents indicated that their first generative AI service or application had already been deployed, with an additional 28 percent planning deployment within the next six months. Per NVIDIA's experts, techniques like domain-adaptive pretraining, fine-tuning, and retrieval-augmented generation (RAG) are now being leveraged in combination with open-source foundation models to create a flywheel for generative AI development, which increases accuracy while protecting enterprise information.

There's been a significant rise in the use and assessment of generative AI applications, particularly for AI agents designed to enhance the efficiency and accuracy of tasks with automation and data retrieval.

Top Generative AI Use Cases

What use cases is your company using or assessing for generative AI/LLMs (select all the apply)?

Use case	2023	2024
Customer experience and engagement (including chatbots, virtual assistants, agent assist)	25%	60%
Report generation, synthesis, and investment research	27%	53%
Document processing (e.g. analysis of documents for investment)	N/A	53%
Synthetic data generation	25%	46%
Code assist and software generation	N/A	44%
Creating marketing and sales assets (ad copy, email copy, and content generation)	24%	43%
Enterprise search (e.g., searching through internal documents, policies)	15%	43%
Compliance and customer onboarding (Know Your Customer and document processing)	20%	38%
Trading and portfolio optimization	15%	38%
Pricing, risk management, and underwriting	13%	32%

Customer experience and report generation were reported as the most common use cases for generative AI, with the percentage of respondents choosing customer experience doubling YoY. Given their availability, cost efficiency, and scalability, the rise in popularity of AI agents for customer experiences is likely to continue. At the same time, digital avatar and digital human technology continues to improve and is becoming easier to deploy. NVIDIA Blueprints bring together nearly 20 AI models in a simplified API that enables organizations to deploy digital assistant technology trained on proprietary data.

Generative AI agents for document processing were measured for the first time in 2024 and reached 53 percent adoption. The generation of synthetic data, particularly useful for financial services companies to test models and strategies without compromising sensitive information, rose from 25 percent to 46 percent. Financial services organizations are using synthetic data to train fraud detection and identity verification models to recognize new threat vectors and fraud patterns. The use of code assistance and software generation agents was recorded at 44% in this first year of measurement, demonstrating how quickly new use cases can catch on when technology can deliver a clear ROI, either by removing inefficiencies or generating new revenue streams.

Among deployed generative AI use cases, 25 percent of respondents reported the highest return on investment from AI-based trading and portfolio optimization. Another 21 percent reported the best ROI for customer experience and engagement, while 11 percent reported the best ROI for both report generation and document processing.

Half of management respondents indicated that their first generative AI service or application had already been deployed, with an additional 28 percent planning deployment within the next six months.

What are the top generative AI use cases by ROI?

25%
Trading and portfolio optimization

21%
Customer experience and engagement

11%
Document processing

11%
Report generation

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NVIDIA Blueprints are pre-defined, customizable AI workflows designed to assist developers in creating and deploying generative AI applications.

Learn more about NVIDIA Blueprints at build.nvidia.com/blueprints

Build an AI Virtual Assistant

Intelligent virtual assistant in financial services redefine customer experience by delivering more accurate, personalized, and sophisticated responses than traditional chatbot solutions.

Multimodal PDF Data Extraction for Financial Document Processing

Intelligent document processing with generative AI lets financial institutions gather insights from unstructured data, enabling faster decision-making and reducing the risk of financial losses.

AI Is Driving Business Results for Financial Firms

The primary objective for industry leaders is to increase revenues and reduce costs with AI. Almost all survey respondents believe that there's ROI for AI, with management particularly optimistic. More than 80 percent of management-level respondents predicted a 2x or more return on AI investments, indicating growing confidence in AI and a realization of AI's financial benefits.

AI continues to help increase revenue and reduce costs. Nearly 70 percent of respondents said that AI increased revenue by 5 percent or more, with 76 percent of managers reporting such gains. There was a dramatic rise in those reporting a 10–20 percent revenue increase, from 0 percent in 2023 to 16 percent in 2024. Additionally, more than 60 percent of respondents said that AI helped reduce annual costs by 5 percent or more.

How much has AI increased your revenue?

Respondents	29%	16%	23%
Revenue increase	5–10%	10–20%	More than 20%

How much has AI reduced your annual costs?

Respondents	35%	17%	12%
Reduced annual costs	5–10%	10–20%	More than 20%

These results underscore the significant impact AI is having on business performance, demonstrating its potential to drive both top-line growth and bottom-line savings.

AI Investment Continues Unabated

Forty percent more companies reported increased AI infrastructure spending compared with the previous year, and 98 percent of management said they'll further increase AI infrastructure spending in 2025.
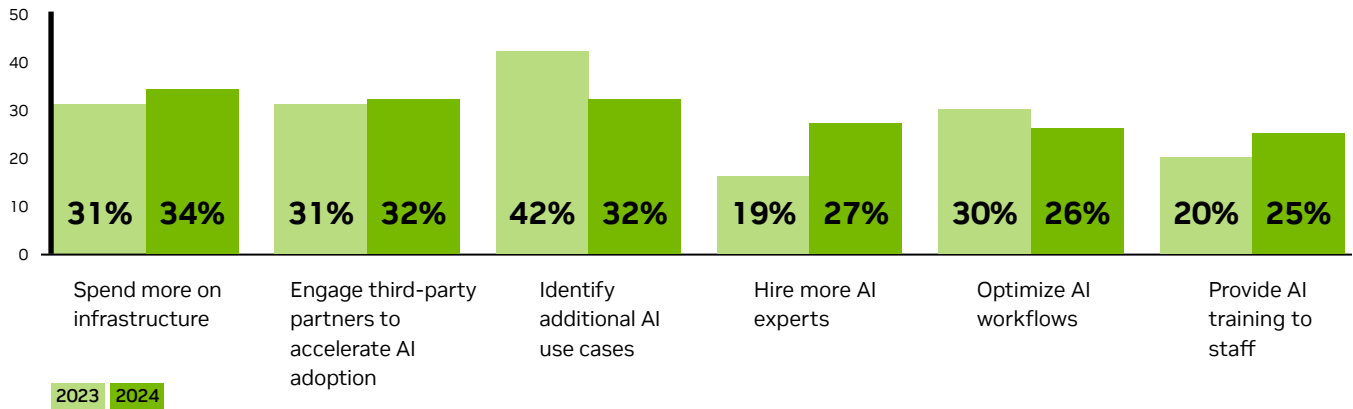
This investment in AI infrastructure suggests that companies are taking steps to build AI factories with full-stack accelerated computing to support the shift from AI exploration to deployment and accelerate AI adoption across the organization. Infrastructure investment in AI factories is also positioning companies to take advantage of agentic AI—systems that leverage vast amounts of data from various sources and use sophisticated reasoning to autonomously solve complex, multi-step problems. There are a multitude of potential agentic AI applications for banks and investment firms, including chatbots that offer personalized financial planning advice, automated risk assessment agents, real-time fraud detection, and more.

"Accelerated computing is revolutionizing financial services by enabling faster, personalized customer experiences driven by big data insights."

Rutger van Faassen, Fintech Influencer, Founder and CEO of Informationbanker

How do you plan to invest in AI technologies over the next 12 months (select up to two)?

2023 **2024**

	Spend more on infrastructure	Engage third-party partners to accelerate AI adoption	Identify additional AI use cases	Hire more AI experts	Optimize AI workflows	Provide AI training to staff
2023	31%	31%	42%	19%	30%	20%
2024	34%	32%	32%	27%	26%	25%

Talent acquisition emerged as a key area of AI investment, with a 42 percent YoY increase in spending to hire more AI experts. Meanwhile, a quarter of respondents said they'll provide AI training to their current staff. Infrastructure and talent acquisition spending are proving to complement one another, as highly trained AI experts are seeking work environments with the most advanced tools of their trade. This is a win-win for firms investing in AI factories built with accelerated computing, as data scientists can train and deploy more sophisticated, accurate models faster.

Other areas of AI spending include engaging third-party partners to accelerate AI adoption, optimizing AI workflows, and identifying additional use cases. However, there's been a 23 percent decline in efforts to identify new AI use cases, indicating a potential shift from exploration to deployment or a saturation of the most promising applications.

In terms of top AI use cases by assessment or investment, customer experience and engagement remain a priority, although reported investment decreased slightly. Cybersecurity saw the most substantial YoY increase at 36 percent, reflecting growing concerns over digital threats. Document processing, algorithmic trading, and risk management also remain important use cases.

> "Accelerated computing enables financial services to achieve higher operational margins in key areas such as fraud detection and compliance, while enhancing decision-making in risk management, credit analysis, and portfolio management."
>
> **Efi Pylarinou**,
> Fintech Influencer

What AI use cases are you assessing or investing in?

2023 **2024**

	Customer experience and engagement	Cybersecurity	Document processing	Algorithmic trading	Risk management
2023	42%	29%	N/A	34%	36%
2024	38%	36%	33%	31%	31%
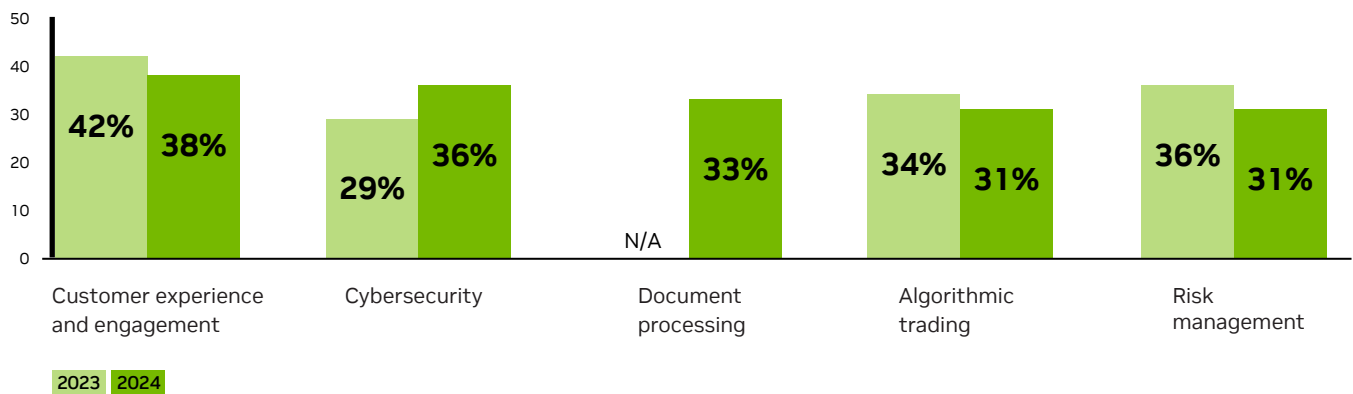
In the realm of ESG and sustainable finance, there's been a notable transition from pilot systems to production capabilities, with the number of companies achieving production capabilities more than doubling. This shift highlights the growing maturity and integration of AI in sustainable finance initiatives.

Do you have AI and machine learning initiatives for ESG and sustainable finance in production?

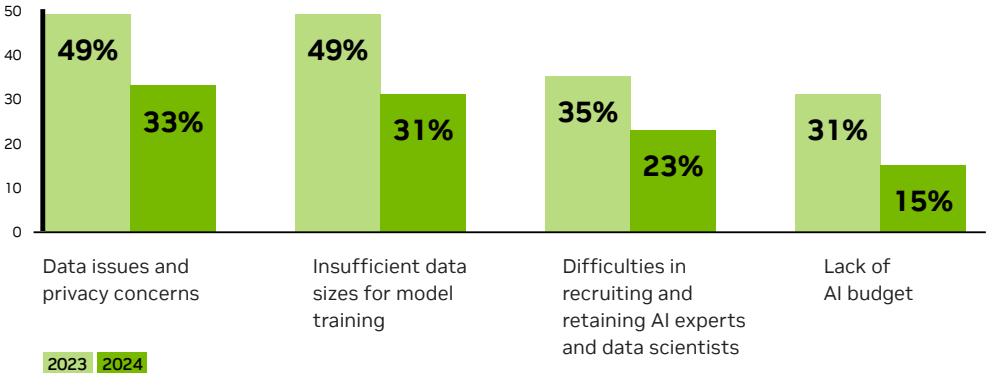

yes: 13% (2023), 32% (2024)

2023
2024
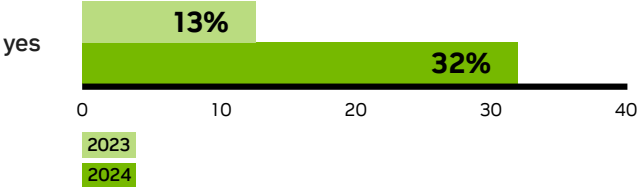
Finally, there's a marked increase in the commitment to trustworthy, safe, and explainable AI. The percentage of companies launching pilot systems for AI/ML governance frameworks rose from 21 percent to 36 percent. With stringent regulations and the sensitive nature of financial data, finance organizations are prioritizing the development of reliable AI aligned with ethical and legal standards.

AI Challenges on the Decline

This year's survey data shows that many of the AI challenges companies faced in previous years have plateaued or decreased, suggesting a shift from assessment and testing phases to successful deployment.
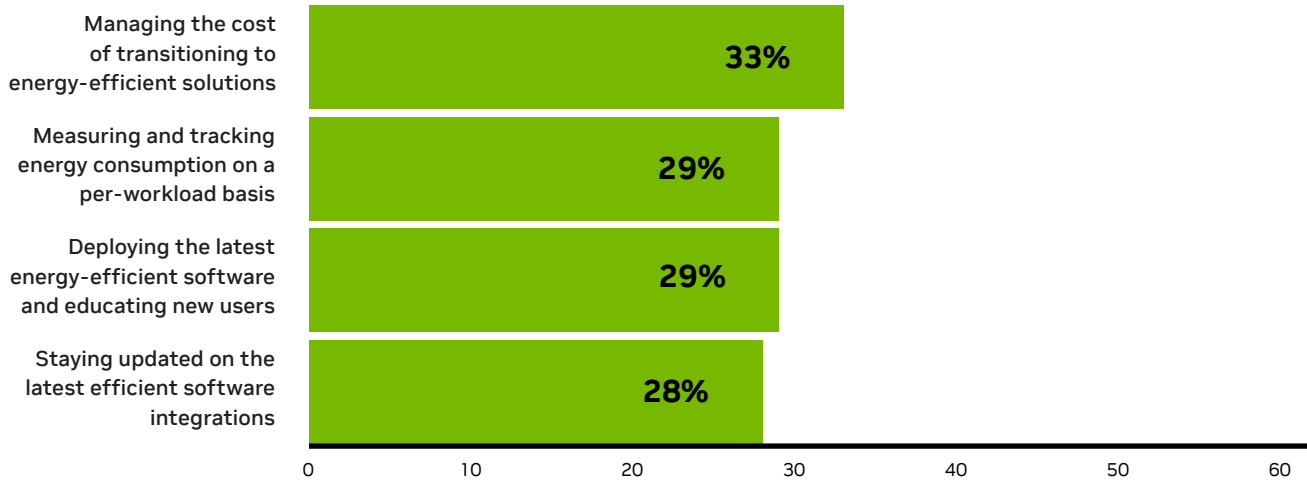
Compared to last year, fewer companies reported issues associated with the early stages of AI assessment and exploration. Fewer companies reported data issues and privacy concerns, insufficient data for model training, difficulty recruiting, and insufficient budget.

	Data issues and privacy concerns	Insufficient data sizes for model training	Difficulties in recruiting and retaining AI experts and data scientists	Lack of AI budget
2023	49%	49%	35%	31%
2024	33%	31%	23%	15%

2023 2024

These improvements reflect the maturing AI landscape where companies are becoming more adept at managing the foundational challenges of AI implementation.

Of course, not all challenges have been overcome. As companies advance in their AI journey and leverage more computing power, new energy concerns arise.

What areas of energy-efficient computing does your company find most challenging (select up to two)?

Category	Percentage
Managing the cost of transitioning to energy-efficient solutions	33%
Measuring and tracking energy consumption on a per-workload basis	29%
Deploying the latest energy-efficient software and educating new users	29%
Staying updated on the latest efficient software integrations	28%

To address energy challenges, companies are taking proactive measures such as optimizing software to reduce runtime on servers and data centers, utilizing cloud services with improved power usage effectiveness (PUE), and migrating to more energy-efficient hardware such as GPUs.

The STAC-A2 benchmark is designed by quants and technologists to measure the performance, scalability, quality and resource efficiency of technology stacks running market-risk analysis for derivatives.

When testing the STAC-A2 options pricing benchmark, NVIDIA GPUs performed 16x faster and 3x more energy efficiently than a CPU-only system for the same workload.
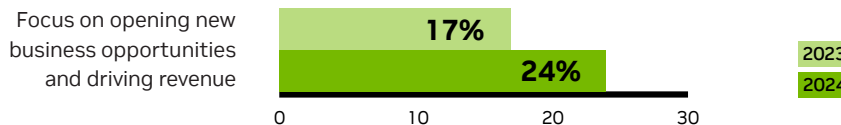
Looking Forward: AI Opportunities and Expectations

As financial services organizations navigate the AI-powered landscape, the role of artificial intelligence in shaping business strategies and operations continues to expand. Banks, asset managers, payments firms, and insurers are building hundreds of AI-enabled applications for use cases ranging from improving identity verification for anti-money laundering and Know Your Customer (AML/KYC) initiatives, reducing false positives for transaction fraud, generating new trading strategies to improve market returns, and automating document management to reduce funding cycles.

Management is increasingly supportive of strategic AI initiatives, with nearly 60 percent of executive leadership acknowledging the value of AI in driving business success. To realize maximum AI benefits, banking and finance leaders are dedicating more resources to AI investment and talent acquisition.

There's been a noticeable shift toward leveraging AI for creating competitive advantages, improving customer experiences, and enhancing employee productivity. These areas have seen increased focus as companies strive to harness AI, not just for cost savings, but as a catalyst for transformation and growth.

One of the most significant trends is the increased focus on opening new business opportunities and driving revenue, which rose from 17 percent to 24 percent YoY. This suggests a strategic realignment toward revenue-generating activities and the exploration of new markets through AI.

60%

of executive leadership acknowledges the value of AI in driving business success.

What are your top goals related to AI?

Focus on opening new business opportunities and driving revenue

17%	2023
24%	2024

0   10   20   30

Finally, survey data shows growing momentum in generative AI, with over half of the respondents currently using this technology.

NVIDIA expects the next development in generative AI will be agentic AI, in which financial institutions will use sophisticated, autonomous AI agents for tasks such as cybersecurity threat detection, customer service, and accelerated investment analysis. With AI factories, financial services companies will be able to build AI applications powered by proprietary data for the best-fit, most-personalized banking and investment solutions for customers.

The findings of this year's report highlight AI's growing importance in the financial sector, positioning it as a cornerstone of innovation and a vital tool for achieving strategic business goals.

Ready to Get Started?

To learn more about how leading financial institutions are using AI and generative AI, visit nvidia.com/finance