Survey Report

State of AI in Financial Services: 2023 Trends

The Key AI Trends for Financial Services in 2023

Enterprises across industries are accelerating innovation and investment in artificial intelligence and machine learning—and financial services is no exception. But how are banks, asset managers, insurers, and others in the ecosystem investing in these cutting-edge technologies? And what impact is it having on their businesses?

While NVIDIA engages the entire finance ecosystem, from global banks to fintech startups, in developing AI-enabled applications that address thousands of use cases, it's important to hear the collective thoughts of the industry to understand how to best leverage the power of AI. Enter NVIDIA's third annual "State of AI in Financial Services" report, based on a survey of approximately 500 global financial services professionals about the trends, challenges, and opportunities of accelerated computing, AI, and machine learning in the industry.

Analysis of this year's results highlights four important shifts in the application of AI in banking, insurance, asset management, and fintech:

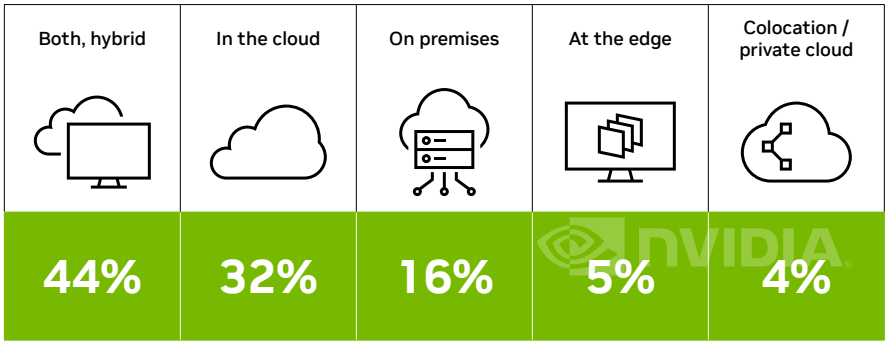
- As the economy faces macroeconomic challenges, financial services companies are looking to AI to more accurately assess risk, create operational efficiencies, and reduce costs.
- Companies are increasing the velocity at which they deploy AI-enabled applications into production. Most use cases analyzed by the survey are used by over 20 percent of respondents' companies, and the percentage of companies that view themselves as laggards in AI fell significantly year over year.
- The competition for data scientists hasn't receded from last year's fever pitch. On the contrary, recruiting and retaining data scientists is now the biggest challenge to achieving a financial services company's AI goals.
- Almost half of AI projects run on hybrid infrastructure, making data portability, MLOps management, and software standardization across cloud and on-prem instances a strategic imperative.

Let's take a deeper dive into these key trends and explore how they'll shape the AI strategies of financial services companies in 2023.

The Need to Reduce Costs

2023 will be about finding ways to reduce costs. In the realm of IT, financial services companies have shown a preference for shifting investments in data centers from capex to opex by migrating from on-prem data centers (capex) to the cloud (opex). The survey data bears this out, as 44 percent of respondents' companies utilize hybrid infrastructure for their AI workloads and projects.

Where do you run most of your AI projects/workloads? (excluding China)



The reality for financial services is that sensitive data cannot be migrated to the cloud and certain workloads are cheaper to run on premises. Because of this, the debate isn't on prem versus in the cloud—it's how to optimize both and reduce costs in the process.

In light of this dynamic, companies can reduce costs in several ways:

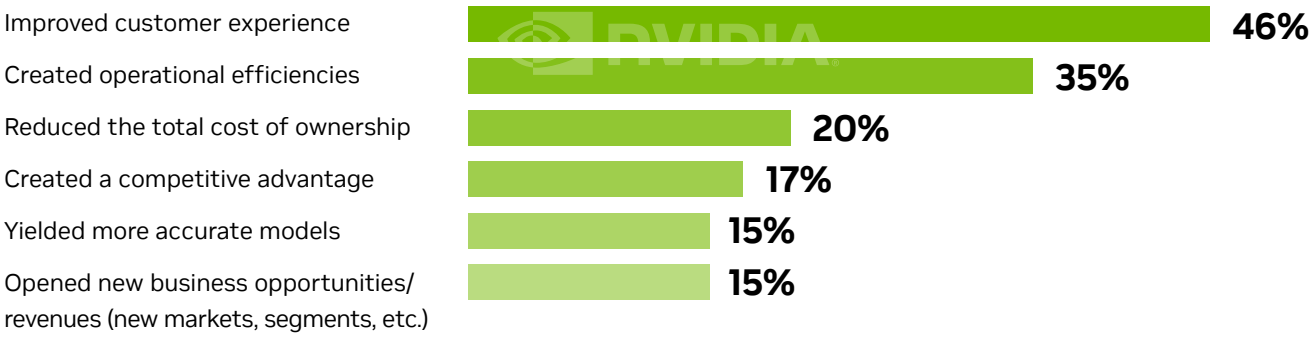
1. Migrate to accelerated computing platforms and reduce grid farms by up to 75 percent. This saves on servers, space, and energy, while improving performance with faster model training, more accurate models, and lower-latency inference.
2. Leverage software that enables workload portability and offers centralized management of hybrid and multi-cloud infrastructure.
3. Deploy AI-enabled applications to enhance customer service.

> "Hybrid cloud strategies are an important way to help banks be more agile and responsive to changing business needs, allowing them to better handle fluctuating workloads and meet the demands of their customers."
>
> – **Bruno Diniz**, Industry Influencer, Fintech Advisor

AI Applications Are Creating Significant Value in Financial Services

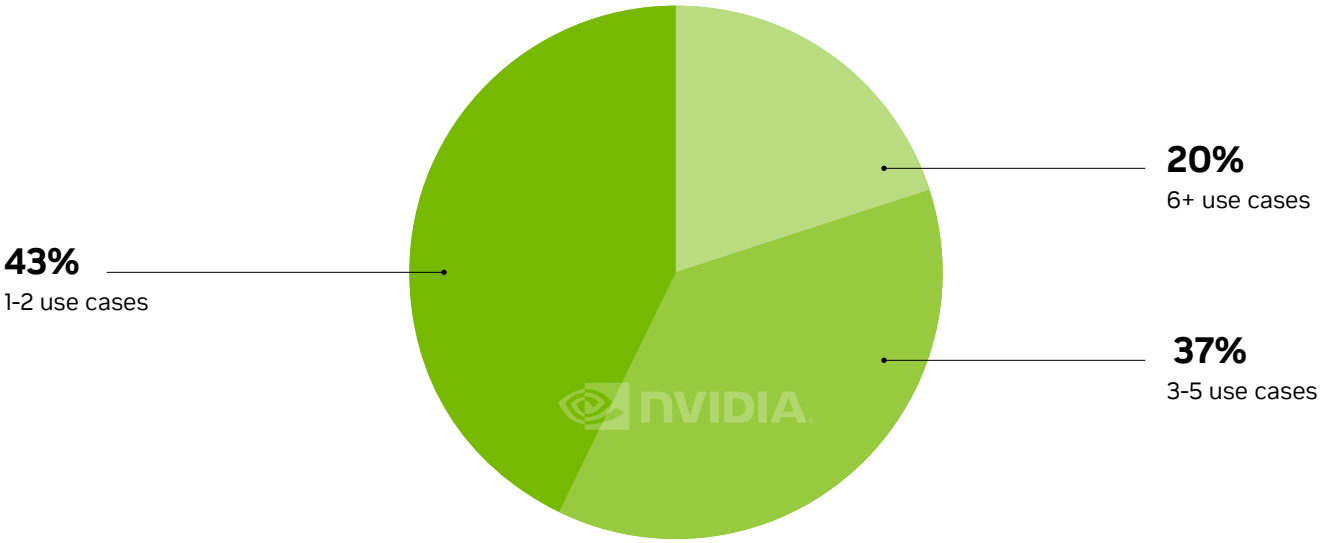
But are AI applications driving real benefits to the companies deploying them into production? The "State of AI in Financial Services" survey results say "yes"—resoundingly. In fact, 35 percent of respondents said the applications created operational efficiencies, and 20 percent said they reduced the total cost of ownership. When asked about how much their companies saved, 36 percent indicated they decreased annual costs by more than 10 percent—a needle-moving impact that can result in higher margins for the company.

How has AI improved your business operations? (all respondents)



The benefits of investing in AI extend beyond financial impact. Companies have been able to improve customer experiences, create new business opportunities, and develop more accurate models—all of which impact the top and bottom lines. What's really exciting is that these companies aren't experiencing these benefits from one use case. In fact, over half of the respondents have already deployed three or more of the use cases highlighted below, and a fifth of respondents cited having six or more use cases in market. Many of NVIDIA's financial services clients are operationalizing hundreds of AI projects.

Number of use cases per respondent (excluding China)



Adoption of AI Use Cases Continues to Accelerate

When asked about the specific AI-enabled applications being used, the examples ranged from fraud detection to portfolio optimization and conversational AI. Impressively, of the 21 different use cases analyzed by the survey, 10 are used by over 20 percent of respondents' companies, demonstrating the potential for numerous applications to make a difference in how financial companies operate. Interestingly, "metaverse / virtual worlds" attained 12 percent penetration among respondents, as financial services companies are identifying a range of use cases for virtual worlds, including training, new employee onboarding, retail branch simulation, insurance risk evaluations, and more.

Top AI use cases in financial services (excluding China)

Natural language processing (NLP) / large language models (LLMs)	**26%**
Recommender systems / next-best action	**23%**
Portfolio optimization	**23%**
Fraud detection: transactions/payments	**22%**
Fraud detection: anti-money laundering / know your customer	**22%**
Algorithmic trading	**21%**
Conversational AI	**20%**
Marketing optimization	**20%**
Creating synthetic data for model creation/optimization	**20%**
Synthetic data generation	**18%**
Document management	**18%**
Compliance	**17%**
Default prediction	**15%**
Environmental, social, and governance (ESG)	**12%**
Metaverse / virtual worlds	**12%**
Claims processing	**12%**
Geospatial AI	**10%**

"The potential of the accelerated recent advances in natural language processing (NLP) and large language models is significant, especially in capital markets. The deployment of these advanced NLPs in the ever-increasing regulatory complexity and the diverse compliance requirements can be a game-changer in financial services."

– **Efi Pylarinou**, Global Influencer, Fintech and Disruptive Tech

"Virtual assistants are a panacea for customer experience and other customer touchpoints. As in other industries, financial services can take advantage of an ally to improve customer service seamlessly."

– **Antonio Grasso**, Entrepreneur, Technologist, Sustainability Advocate

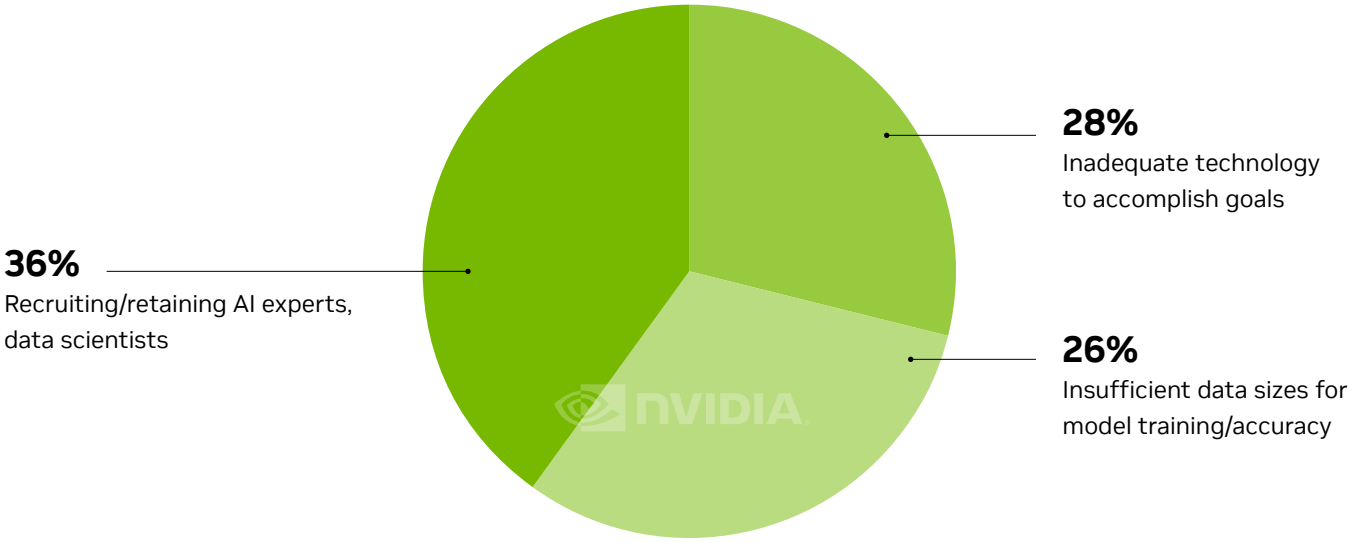
"There are many potential use cases for metaverse applications in the banking industry, including customer service, remote onboarding, internal process management, training and development, product demonstrations, [and] virtual events."

– **Xavier Gomez**, Fintech Global Influencer

The Top Challenge: Hiring and Retaining Data Scientists

Despite the success of deploying a range of AI use cases into production across financial services, the effort isn't without its challenges. Management, line-of-business leaders, and IT face a range of potential roadblocks. For the first time in its three-year history, the "State of AI in Financial Services" survey results show that recruiting and retaining data scientists is the number one challenge. Further supporting the hiring challenge the industry faces, 36 percent of respondents agreed that "My company has trouble recruiting AI experts, e.g., data scientists," an increase of 80 percent over last year.

What are the biggest challenges in achieving your company's AI goals? You can select up to three. (all results)



Rounding out the top three challenges were inadequate technology to accomplish goals and insufficient data sizes for model training and accuracy. The first reflects the need to invest in the right infrastructure to support AI transformation. And the second highlights why many are focused on streamlining data pipelines, investing in new data lakes, and leveraging new techniques—such as federated learning and confidential computing—to expand the size and quality of their data.

"Synthetic data can be used to augment existing datasets, allowing financial institutions to expand the scope and diversity of the data that is available for training and testing. This can help to improve the performance and accuracy of AI models, as well as helping to ensure that they are able to face new situations and environments."

– **Bruno Diniz**, Industry Influencer, Fintech Advisor

Emerging Topics: Environmental, Social, and Governance (ESG) and Trustworthy AI

In last year's report, only 26 percent of respondents believed their company understood the ethical issues associated with AI and proper governance. In contrast, this year, 72 percent of respondents reported that they're building a framework for AI governance and risk management to ensure that their AI systems are trustworthy and explainable. The majority of respondents are even building an automated or semi-automated system to test that their company's AI systems are trustworthy and explainable. Most of the respondents are in the planning and piloting phase; however, it shows that many institutions are actively building frameworks for AI governance, risk management, and systems to test their AI quality. Accelerated computing generally supports AI quality and helps to build automated tools for testing.

This year, sustainable finance and ESG are among the cited use cases—at over 10 percent level—as institutions are building frameworks for an evidence-based, data-driven, AI-powered approach. Similar adoptions are observed in the "geospatial AI" and "metaverse / virtual worlds" use cases. These cases are sometimes linked to the management of environmental, climate, and ESG risks.

The Future of AI in Financial Services Is Bright

These challenges have solutions and this year's "State of AI in Financial Services" survey results reflect progress across a number of dimensions when it comes to AI in the industry. For example, 64 percent of respondents agreed that their executive leadership "values and believes in AI"—an increase of 78 percent year over year. The good news continues with other responses: More than twice as many respondents this year over last year agreed with the statement "Financial services is the most advanced AI industry in the world," growing from 15 percent to 32 percent.

How much do you disagree or agree with the following? (7-pt scale, top 2 box score)

	Last Year	This Year	Percentage Change
My executive leadership values and believes in AI.	36%	64%	**78%**
AI is important to my company's future success.	39%	58%	**49%**
Fintechs are better at AI than incumbent financial services companies.	29%	47%	**62%**
My company has trouble recruiting AI experts, e.g., data scientists.	20%	36%	**80%**
My company invests the right amount of money in AI.	17%	32%	**88%**
Financial services is the most advanced AI industry in the world.	15%	32%	**113%**

Looking Forward

AI promises to transform the financial services industry for providers and their clients. But companies need to do more to compete effectively with incumbents, fintechs, big tech, retailers, and others that want more than their fair share of financial services customers and their financial data. As an example, only 32 percent of survey respondents agreed with the statement "My company invests the right amount of money in AI," meaning 68 percent of respondents believe their financial services firm is underinvesting in AI.

This is a significant gap that must be addressed. As 58 percent of respondents agreed, "AI is important to their company's future success." From higher revenues to more personalized, rewarding customer interactions, it can open numerous doors of opportunity and build a strong competitive edge in a highly competitive industry.

Ready to Get Started?

Explore NVIDIA's AI solutions and enterprise-level AI platforms for financial services at **www.nvidia.com/finance**

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