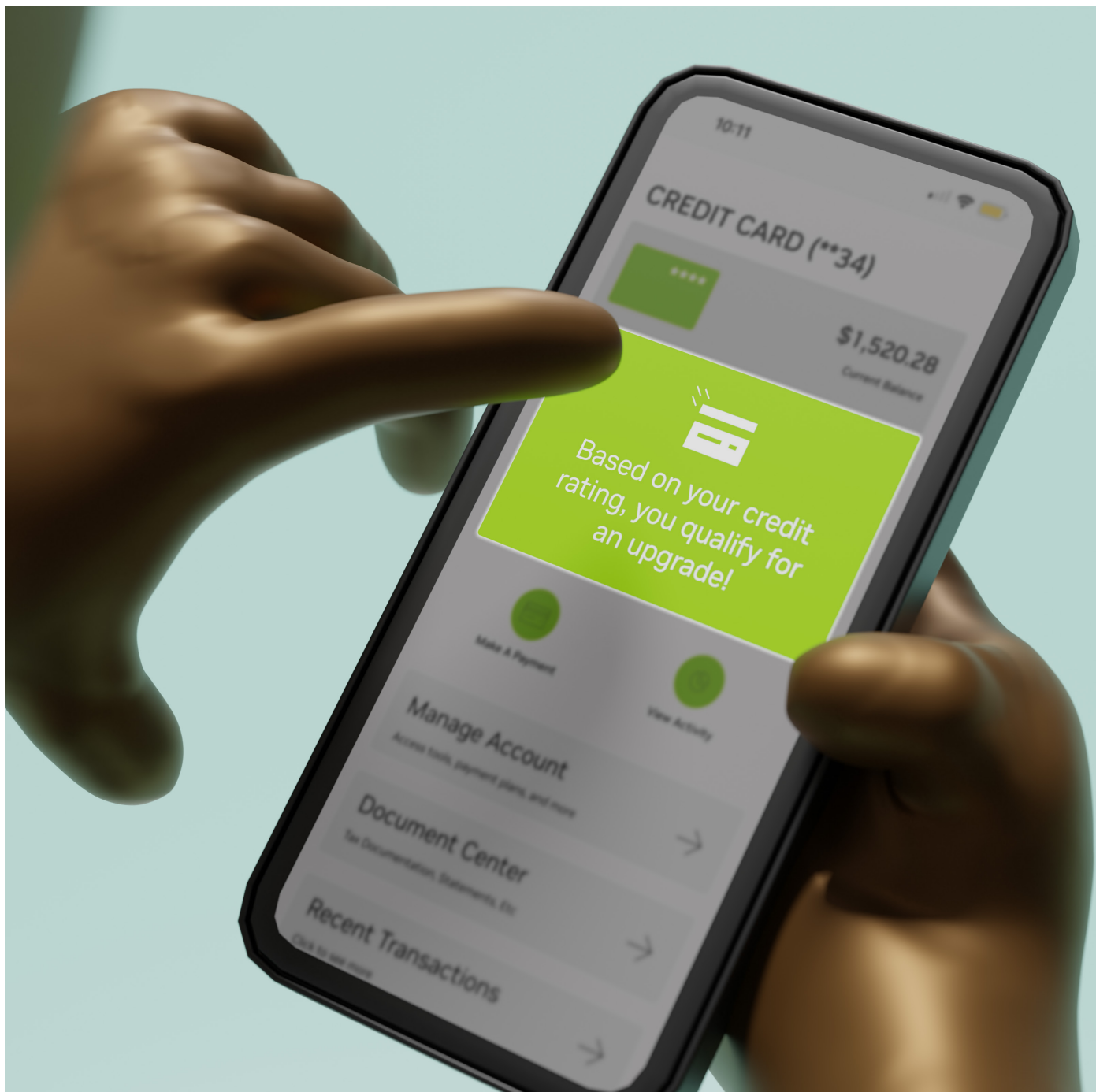


State of AI in Financial Services: 2024 Trends



The Key AI Trends for Financial Services in 2024

Generative AI has barely been on the financial industry's radar for a year, and yet it dominated the results of NVIDIA's latest State of AI in Financial Services survey. Emerging as a particularly promising tool, nearly half of respondents (43%) are already using it in their organizations, with it ranking in the top five of AI workloads in financial services. The use cases being powered by generative AI range from internal applications, such as analyzing vast amounts of data and yielding investment insights, to external facing use cases, such as marketing and delivering personalized banking experiences.

43% of respondents are already using generative AI in their organization.

46% of respondents are already using large language models (LLMs) in their organization.

Beyond generative AI, financial services—like other industries—is racing to automate repetitive tasks, deliver new products, and reduce costs with artificial intelligence. In the financial services industry, banks, asset managers, and fintechs are striving to use AI to transform the way they work and the services they offer to investors and consumers.

To better understand industry thoughts and sentiments on how to best leverage AI to transform finance, NVIDIA has completed our fourth annual State of AI in Financial Services report, based on a survey of approximately 400 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 survey results highlight four important findings in the application of AI in trading, banking, payments, and fintech:

- > Financial services institutions are using a growing number of AI workloads and are especially interested in the abilities of generative AI to automate processes and improve customer service.
- > Financial services organizations are gaining confidence in their ability to identify AI use cases and extract value from AI deployments.
- > As the complexity and size of AI models have grown, data concerns have eclipsed recruiting experts as the biggest challenge to achieving AI objectives.
- > Financial services firms are exploring new ways to build and deploy trustworthy, secure AI, including federated learning and confidential computing.

Building AI Confidence

Over the past 12 months, financial service organizations have worked to improve their understanding of AI use cases, the needed computing infrastructure, and deployment options. As a result, companies are feeling confident in their position in the AI race, with 75 percent considering their AI capabilities industry leading or in the middle of the pack. Survey results show that management has a rosier view, with 30 percent viewing their organization as industry leaders, versus 20 percent of non-managers¹. This could be down to the greater visibility that managers have of AI projects and the impacts they have across the organization.

How would you rate your company's AI capabilities? (excluding China)	All respondents	Management	Non-management
Industry leading	25%	30%	20%
Middle of the pack	50%	46%	55%
Industry laggard	24%	24%	24%

While banks and asset managers are applying AI to industry-specific challenges such as risk management, regulatory compliance, and fraud detection, AI is driving speed and efficiency across disciplines and job roles. It's unlocking data insights, enabling marketers to create highly customized marketing campaigns. It's giving sales teams more targeted approaches to identify and prioritize leads, while generative AI lets them personalize emails and advertising offers. And AI-powered automation is taking over repetitive tasks to free up human resources and streamline operations.

From Revenue to Operations, AI Is Having an Impact

Positive perception of AI's impact continues from last year, with more than 80 percent of respondents reporting that AI is increasing revenue and decreasing annual costs.

According to survey data, financial services firms are deploying AI across core business areas. To improve operations, they're using AI to automate manual processes, optimize resource allocation, and enhance efficiency. For example, AI-powered chatbots are being used to handle customer inquiries and provide real-time support, reducing the need for human intervention and improving response times. In risk and compliance, organizations are using machine learning to analyze vast amounts of data to enhance fraud detection, improve anti-money laundering (AML), and ensure regulatory compliance. Marketing departments are leveraging customer data to generate personalized recommendations, targeted advertisements, and tailored marketing campaigns. And sales teams are benefiting from AI-optimized lead generation, customer relationship management, and sales forecasting.

“One of the predominant factors driving successful adoption of AI in any industry today is the cost of training and inference. Finding ways to accelerate model training time while being able to save on space and resource use will be key.”

– **Theo Lau**, Fintech Influencer, Author, Founder of Unconventional Ventures

Which of the following areas is currently using AI solutions in your organization? (excluding China)



When asked about specific areas of AI impact, responses ranged from operational efficiencies to new business advantages.

How has AI improved your business operations? (excluding China)	
Created operational efficiencies	43%
Created competitive advantage	42%
Improved customer experience	27%
Yielded more accurate models	27%
Opened new business opportunities	23%
Reduced the total cost of ownership	14%

The sentiment around AI’s ability to create new operational efficiencies jumped 30 percent from last year, suggesting businesses are ready to leverage new tools like generative AI to automate reporting, create customized marketing material, and build interactive customer support bots.

This openness to new AI tools demonstrates the industry’s overall interest in AI. In fact, financial organizations are already using several **AI workloads**, with data analytics and data processing taking the top spots.

What are the AI workloads your company is utilizing today? (excluding China)



By processing large volumes of data in real time, banks and asset managers can identify market trends and make decisions to respond to market changes quickly.

AI-powered data analytics enable more effective risk management by identifying anomalies in investments, loans, and other financial instruments. Accelerated data analytics also powers efficient analysis to detect subtle and sophisticated fraud patterns.

NLP powers chatbots and virtual assistants that can understand and respond to customer queries, assist with various banking tasks, and deliver personalized recommendations.

With **retrieval-augmented generation** (RAG), companies can combine off-the-shelf or custom LLMs with a mechanism that fetches data from internal or external knowledge bases. This makes it possible to create assistants that are equipped with the most up-to-date information, including industry- and company-specific information, so they can generate more accurate results.

With ChatGPT and LLMs now used across industries for numerous business functions, generative AI is on the fast road to becoming a mainstream technology. In addition to those already using the technology, a further 55 percent of respondents surveyed are looking into generative AI.

What use cases is your company exploring for generative AI and LLMs? (excluding China)

Report generation	37%
Customer experience/engagement	34%
Synthetic data generation	33%
Marketing	32%

Generative AI can be used to quickly generate commonly used documents such as risk assessment reports, fraud detection reports, and investment performance reports. With up-to-the-minute reports at their fingertips, finance professionals can make informed decisions at the speed of business and remove friction from operations.

Generative AI can also power improved customer experiences with personalized financial plans and investment recommendations and virtual assistants that can answer a wider array of customer inquiries than traditional chatbots.

Synthetic data created with generative AI can improve forecasting for market-moving trends such as inflation and consumer price indexes (CPIs). Organizations that operate globally can create synthetic datasets to replicate geographically locked data to train more accurate models.

By analyzing customer demographics, transaction history, and behavior patterns, generative AI can help develop marketing campaigns based on customer segment preferences, needs, and profitability and even generate new market strategies, products, and sales campaigns for the company.

“Advanced NLP and large language models empower virtual assistants to handle complex customer inquiries, offer personalized financial advice, and provide real-time support. This technology is revolutionizing customer interactions, making services more accessible and efficient.”

– **Helen Yu**, Fintech Influencer, Executive Consultant, Podcast Host

“Using generative AI on financial document analysis in trading and banking can further automate data extraction and interpretation, significantly enhancing operational efficiency. This automation not only speeds up transaction processing but also minimizes errors, leading to a more streamlined operation.”

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

“The way generative AI enhances risk management and fraud detection is noteworthy. It’s incredibly adept at identifying potential fraud, which is increasingly important in our digital age. Also, its role in ensuring compliance with ever-changing regulations cannot be overstated.”

– **Antonio Grasso**, Author of *Toward a Post-Digital Society*, Technologist, and Sustainability Advocate

Organizations See the Potential of AI Across Use Cases

When asked about the specific AI use cases their company invests in today, answers ranged from algorithmic trading and portfolio optimization to customer experience and cybersecurity. Of the 20 use cases analyzed in the survey, six stood out with more than one-fourth of survey respondents investing in each of these areas.

What AI use cases is your company investing in today? (excluding China)

Risk management	36%
Portfolio optimization	29%
Fraud detection (transactions/payments)	28%
Algorithmic trading	27%
Document management	26%
Customer experience	26%

To quickly and accurately detect payment and transaction fraud, AI models can flag unusual transaction amounts, locations, or patterns and hand off cases to staff for further investigation. Deep learning models such as graph neural networks can establish relationships across entities that were previously undetected, enabling more effective monitoring for AML and Know Your Customer (KYC) compliance. Models can also leverage continuous learning to adapt to new fraud patterns and enable real-time monitoring and detection.

AI can also help asset managers optimize portfolios by assessing market conditions, tracking portfolio management, and identifying risks and opportunities. By automating the monitoring process and integrating real-time data feeds, AI can provide timely alerts and insights, letting portfolio managers make informed decisions and act proactively.

Financial institutions can use machine learning to improve algorithmic trading by analyzing market data, identifying patterns, and drawing data-driven conclusions in real time. Generative AI can draw valuable insights from financial filings, earnings call transcripts, and sentiment analysis to drive investment decisions.

With NLP, AI can extract and analyze information from financial documents such as contracts, invoices, and statements. This automates data entry and document classification to streamline document processing and reduce manual errors. AI can also read and analyze contracts, insurance policies, and other documents in mergers and acquisitions to reduce the cost and time to close deals.

From call center transcription to intelligent chatbots, AI is helping remove barriers to customer support and reduce friction to execute common banking tasks. AI can serve as a copilot to customer service agents, aiding them in delivering faster, more personalized, consistent service to customers.

“Automation of document analysis saves time by swiftly processing large volumes of data, reducing manual errors, and streamlining workflows. This efficiency translates to quicker decision-making in trading and banking.”

– **Helen Yu**, Fintech Influencer, Executive Consultant, Podcast Host

Challenges Remain

While enthusiasm and investment in AI has increased, challenges remain. The survey results revealed four primary obstacles financial service organizations face to reaching their AI goals.

What are the biggest challenges in achieving your company’s AI goals? (excluding China)

Data issues: privacy, sovereignty, and disparate locations	38%
Recruiting and retaining AI experts and data scientists	32%
Lack of budget	28%
Sufficient data sizes for model training and accuracy	27%

Having increased from 28 to 38 percent since last year, data issues are now the greatest concern for financial organizations, representing a 36 percent positive change. They struggle with data-related challenges, including data privacy, data sovereignty, and data scattered around the globe governed by different oversight regulations. Sliding from greatest concern to second-greatest concern, 32 percent of organizations reported that recruitment and retention of AI experts and data scientists were roadblocks to achieving their AI goals. But as financial services companies continue to invest in industry-leading AI technology platforms, AI experts will find themselves in a position to succeed and consider the industry a more attractive employment option. For 28 percent of respondents, lack of budget was a barrier to the implementation of AI initiatives. Finally, 27 percent of respondents found a lack of high-quality, diverse datasets to be a challenge to effective model training and accuracy.

Overcoming Challenges

Aware of growing AI oversight from regulatory bodies and consumer scrutiny, financial service organizations are taking a number of actions in pursuit of accurate, trustworthy AI that protects data privacy.

Preserving Privacy and Building Secure AI

Eighty-four percent of financial organizations are implementing or planning a framework to govern how AI will be built, trained, and used to adhere to business principles and relevant regulations. This is a 17 percent increase from last year. Eighty-four percent are also utilizing hardware or software to validate and monitor their frameworks for trustworthy and explainable AI. This demonstrates that companies are using all tools at their disposal, including AI, to govern models in production.

Financial organizations are also beginning to make use of federated learning and confidential computing. With federated learning, organizations can train AI models on a decentralized platform without transporting data, developing AI more securely. Confidential computing technologies provide a secure environment for processing sensitive data, helping organizations meet compliance requirements such as those in the General Data Protection Regulation (GDPR), Health Insurance Portability and Accountability Act (HIPAA), and the California Consumer Privacy Act (CCPA). Although these fields of computing are only a few years old, more than 1 in 10 (12%) survey respondents are already assessing federated learning or confidential computing to improve data privacy and security to develop trustworthy AI.

Financial organizations expressed broad interest in leveraging AI to tackle other areas of cybersecurity.

What cybersecurity challenges are (or will be) addressed by AI within your organization? (excluding China)

Fraud detection	51%
Credential/identity attacks	32%
Zero trust	22%
Confidential computing	19%
Ransomware/malware	18%

AI can detect identity fraud by analyzing large volumes of data quickly, flagging suspicious behavior, and alerting organizations to take proactive mitigation measures. By analyzing user behavior, device information, and contextual data and enhancing authentication processes, AI is helping organizations reduce credential and identity attacks. AI can be used to enforce a zero-trust environment in which user activity, network traffic, and device behavior is continuously monitored to detect any signs of compromise. Organizations are also using AI to create confidential computing environments, or secure enclaves with encryption to safeguard data during processing. Finally, AI algorithms are being used to identify suspicious patterns and detect known malware signatures, enabling organizations to block or swiftly respond to ransomware and malware attacks.

“From a banking perspective, I see significant cost savings and a more efficient allocation of human resources as routine tasks are automated. Additionally, the enhanced security features these AI systems offer, especially in detecting potential fraud through pattern recognition, add a layer of safety to financial transactions.”

– **Antonio Grasso**, Author of ‘Toward a Post-Digital Society’, Technologist, and Sustainability Advocate

Looking Forward

There is growing consensus on the importance of AI, with 51 percent of respondents “strongly agreeing” that AI would be important to their company’s future success, a 76 percent increase from last year.

AI is important to my company’s future success.* (excluding China)	2023	2022
Strongly agree	51%	29%
Neutral	12%	27%
Strongly disagree	3%	4%

* Based on a 7-point scale

As financial services organizations move from proof of concept to business impact, there's growing support for continued investment in AI projects. Target areas include identifying additional AI use cases, working with partners to accelerate AI adoption, optimizing AI workflow and production cycles, and purchasing more computing infrastructure.

How do you plan to invest in AI technologies in the future? (excluding China)	2023	2022
Identify additional AI use cases	51%	40%
Optimize AI workflow/production cycle	37%	37%
Spend more on infrastructure	26%	26%
Engage third-party partners to accelerate AI adoption	26%	19%
Provide AI training to staff	21%	28%
Hire more AI experts	20%	28%

Compared with last year's results, the intention to hire more AI experts decreased from 28 to 20 percent, representing a 28 percent negative change. Plans to invest in additional AI use cases increased from 40 to 51 percent, representing a 28 percent positive change. This may be due to the growing availability of pretrained models and frameworks that organizations can easily fine-tune for their desired applications.

As organizations look to expand AI use cases, they'll need computing infrastructure—to invest in more hardware and software. Only 34 percent of respondents agreed with the statement “my company invests enough money in AI,” leaving 28 percent neutral or unsure and 39 percent feeling that their company is underinvesting. But this may change soon—97 percent of respondents indicated that their company will increase spending on AI infrastructure this year.

More than half of financial services professionals are convinced that AI will play an important role in business success, and 91 percent of organizations are already assessing AI or deploying AI in production. From enhancing fraud detection to powering algorithmic trading and chatbots for personalized customer interactions, AI can help organizations control costs while delivering higher-quality services to customers and partners.

Ready to Learn More?

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

