

Research  
report

# How AI is Transforming the Financial Services Industry

Most financial companies are well into their **AI journey**. They are now preparing for the infrastructure upgrades that will **drive success in a hypercompetitive landscape**.



CIO

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**W**hile many industries are just getting started with artificial intelligence (AI), North American financial services firms have benefitted from the technology for years, deploying solutions from productivity-boosting chatbots and virtual assistants to cybersecurity and fraud detection systems. But today, the industry is on the cusp of higher-level breakthroughs.

Success with current solutions has whetted leaders' appetite for exploring more innovative use cases. Recent advances in AI hardware and software are poised to open the door to a host of new capabilities that could help companies save time, deepen customer relationships, promote trust and transparency, and proactively remove threats.

These are some of the findings revealed in a recent Foundry survey (sponsored by Intel) of 200+ financial business and IT leaders at banks, credit unions, private equity firms, hedge funds, insurance companies, payment companies, and asset management firms across the Americas. This report focuses on data and responses from the 103 companies located in the US and Canada.

The survey shows that despite lingering uncertainties about data privacy and security, the vast majority of finan-



cial services firms are already widely deploying AI and eager to explore new capabilities. Most expect to see transformative AI-powered products and services enter the industry within the next three years.

In this report, we will describe the benefits financial organizations expect to receive from their AI technology investments, their successes and challenges as they roll out new applications, and their hopes and expectations for the future – both for their own companies and for the industry as a whole.

Part I:  
**The Current State  
of AI in Finance**

## Why Financial Companies Are Investing in AI

Improving efficiency and cost savings (62%) and boosting employee productivity (52%) are financial firms' top motivating factors for investing in AI (see Figure 1). Other important reasons for investing in AI include improving risk management and fraud detection (36%), keeping ahead of the competition (34%), and enhancing customer experiences (33%).

The types of AI applications companies find most appealing reveal how they believe AI can help them achieve these goals (see Figure 2).

These use cases fall roughly into four categories:

- **Improving customer service**
- **Delivering personalized reports and marketing messages**
- **Strengthening security and risk management**
- **Raising efficiency**

**Figure 1 | Financial Firms' Top Reasons for Investing in AI**

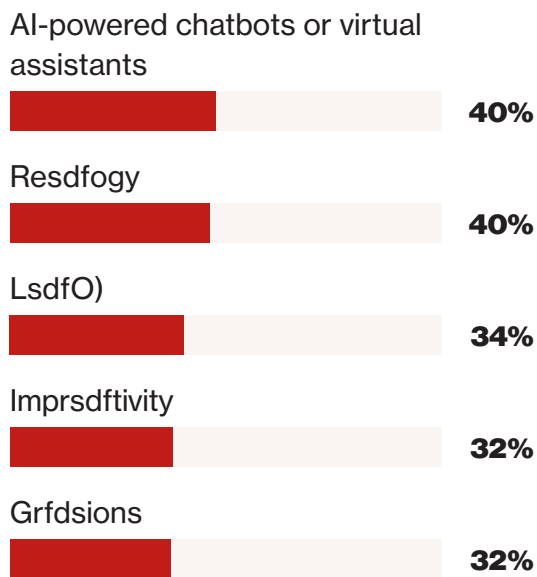


SOURCE: FOUNDRY, NORTH AMERICA STUDY, 2024

Customer service improvement was the most appealing category, with nearly all respondents (98%) selecting one or more customer service-related use cases. One of the top applications in this category was AI chatbots and virtual assistants, selected by 62%. In addition to enabling chatbots to understand customers and respond to them

in ordinary speech, natural language processing algorithms can scan, categorize, and summarize a wide variety of printed information for financial employees, including industry news, stock market data, public company annual reports, and other SEC filings. They can also analyze customer feedback to determine sentiment, helping firms understand which services their clientele appreciate the most and which need improvement.

**Figure 2 | Most Appealing AI Use Cases for Financial Services Organizations**



SOURCE: FOUNDRY CLOUD COMPUTING STUDY, 2023

# 62%

of all respondents selected **AI chatbots and virtual assistants** as the **top application for customer service improvement.**

Finance companies also want to improve the customer experience by translating written or spoken text in real time (40%) and deploying interactive digital signs (31%).

In an age when online shopping has made customers expect instant personalization wherever they go, 81% of organizations selected use cases related to personalization. Such use cases include using AI to customize dashboards, reports, and investment portfolios (56%) and to divide customers into segments to develop better-targeted marketing (45%).

Strengthening risk management is also vital to financial firms, which are frequently the target of cyberattacks. The vast majority of organizations

(91%) cited at least one use case designed to help keep risks at bay. About half listed cybersecurity monitoring (53%) and fraud detection (49%), and 39% cited compliance monitoring. AI can also help banks, insurers, and payment companies save time in analyzing business risks. Over a third of respondents (34%) listed credit scoring as a top use case.

Eighty-eight percent of organizations considered optimizing operational efficiency and business processes to be the most desirable set of AI use cases, specifically citing capabilities such as automated report generation (46%), help with software development and testing (44%), and optical character recognition for document scanning (34%).

In addition to their specific functionality, every application cited by respondents helps further their top AI goals of

improving efficiency and productivity and generating cost savings. By automating processes behind the scenes, applications ranging from chatbots and instant reports to code generation and automated threat detection can save employees enormous amounts of time. And as financial firms are well aware, time is money.

“By enabling enterprise users to work faster and more efficiently, AI helps financial firms reduce their costs,” says Parviz Peiravi, global CTO, Financial Services Industry Solutions Architecture and Design Industry Solutions Group at Intel.

A recent study by IDC and Microsoft quantified some of AI’s financial benefits, finding that most organizations are making or saving money through their AI deployments within 14 months, with average returns equal to 3.5 times the cost of investments.<sup>1</sup>

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– **Parviz Peiravi**, Global CTO, Financial Services Industry Solutions Architecture and Design Industry Solutions Group, Intel.

## Prioritizing Initiatives

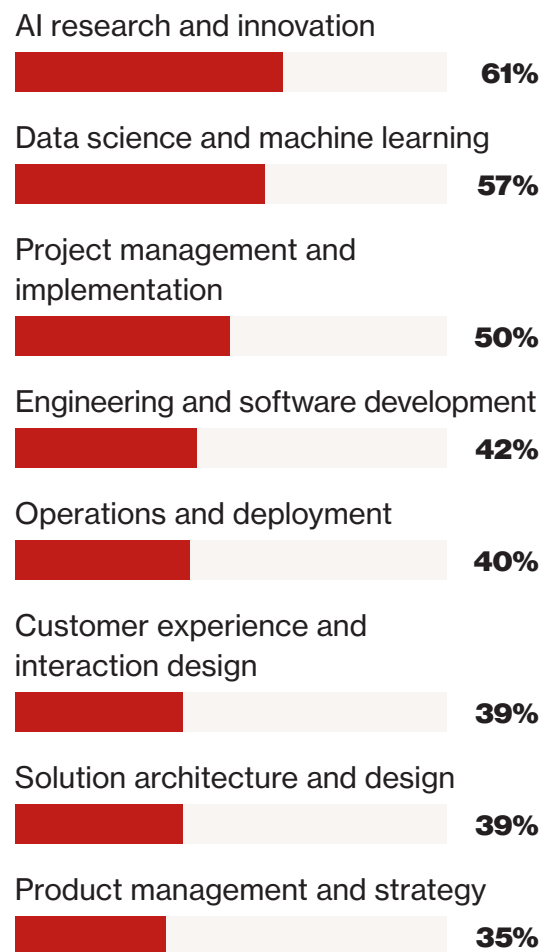
With so many different AI applications to choose from, financial companies need to determine an order of business for their deployments. When asked which capabilities they most wanted to have in the next 12 months, 61% listed AI research and innovation and 57% cited data science and machine learning (see Figure 3).

Research and data skills are needed to help firms make the right implementation decisions. In order to deploy AI successfully, they need to investigate potential use cases and have developers experiment with applications that can solve specific problems, improve existing services, or add new profit-generating offerings. That kind of research requires expertise in data science and machine learning, which companies can obtain either through internal hiring or from external partners.

In addition to exploring AI's open-ended potential, financial firms say they would like to harness AI in the near future for project management (50%), engineering and software development (42%), and improving

interactions with customers (39%) – solutions that are likely to quickly generate cost- and labor-saving results and encourage further AI investments.

**Figure 3 | Top AI Capabilities Financial Companies Seek to Acquire in the Next 12 Months**



SOURCE: FOUNDRY, NORTH AMERICA STUDY, 2024

## Successful AI Deployments

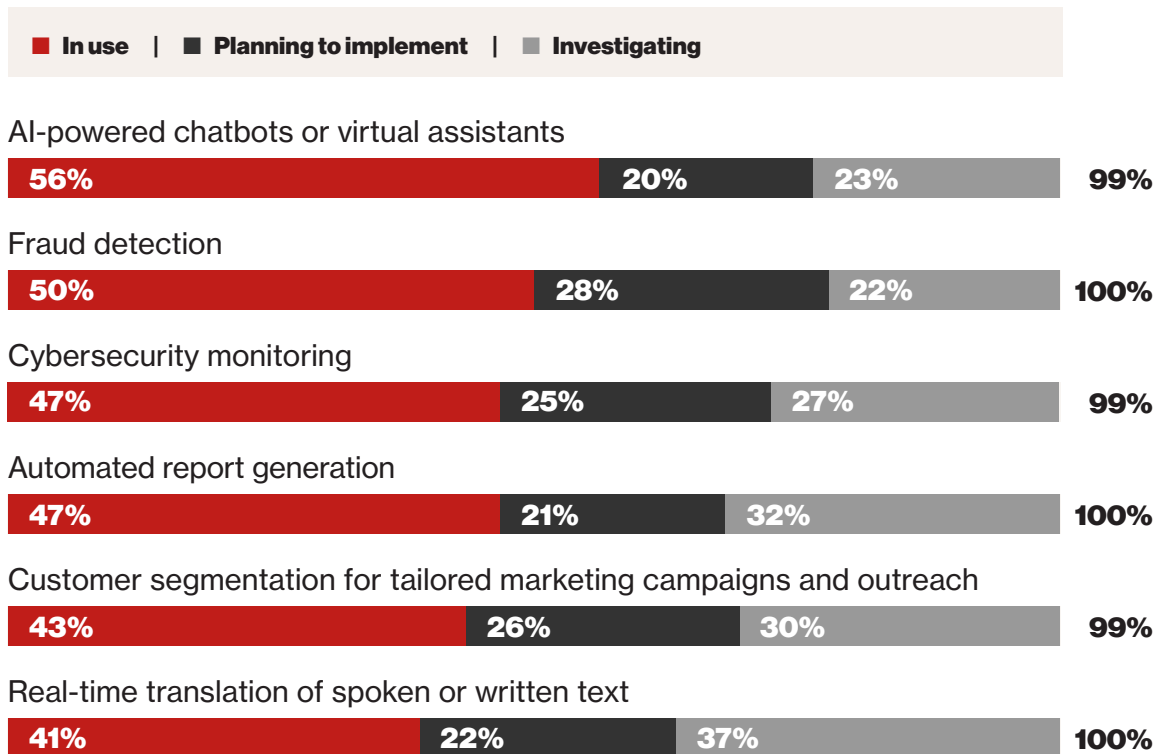
Many financial institutions have already adopted some of the capabilities the survey listed as most appealing, with encouraging results. For example, more than half (56%) are using AI chatbots, and half are using AI for fraud detection (see Figure 4).

Chatbots can verify customers with multifactor authentication procedures, quickly searching databases

to confirm security words or using AI voice recognition systems. They can also decipher and answer common questions 24/7. Complex requests may be passed to human agents, who can spend more time getting to know customers instead of walking people through the process for opening an account or applying for a mortgage – tasks that can be handled by AI.

Chatbots can also comb through customer records and online information

**Figure 4 | How Financial Firms are Using and Planning to Use AI**



SOURCE: FOUNDRY, NORTH AMERICA STUDY, 2024



in real time to suggest appropriate products and services, which agents can then recommend during ensuing conversations.

Advanced chatbots can help customers gain a better picture of their finances and speed them toward achieving their goals. For example, they can analyze household spending, calculate how much is going toward rent, groceries, utilities, entertainment, and other expenses, and suggest ways to save for a new car or a down-payment on a house. As the bots accumulate information from these interactions, they reveal trends about what bank customers want and how happy or unhappy they are with the company's services.

Financial companies can also use chatbots or virtual assistants for their employees, helping to onboard new hires or provide personalized answers to questions such as, "How has my 401(k) performed over the past six months?" or "How much vacation time do I have left?"

All these applications save companies time and money.

Using AI for fraud detection saves

banks money, too – not only by stopping cybercriminals, but by deploying their technology more efficiently. For example, a large payments company that was losing over \$1 billion a year from fraud implemented AI to spot and stop suspicious activity in real time. As a result, the firm reduced illicit transactions by 30%. In addition, more efficient processing enabled it to spend three times less than previously on servers and other hardware expenses.

Other popular AI use cases include automated report generation (47%), customer segmentation (43%), real time translation of speech or text (41%), and compliance monitoring (40%).

Many companies that aren't already using AI for chatbots, fraud detection, and other high-priority use cases are planning to implement them in the next 12 months. For each use case listed in the survey, at least 60% of firms will be deploying it in the near future.

## Progress and Challenges

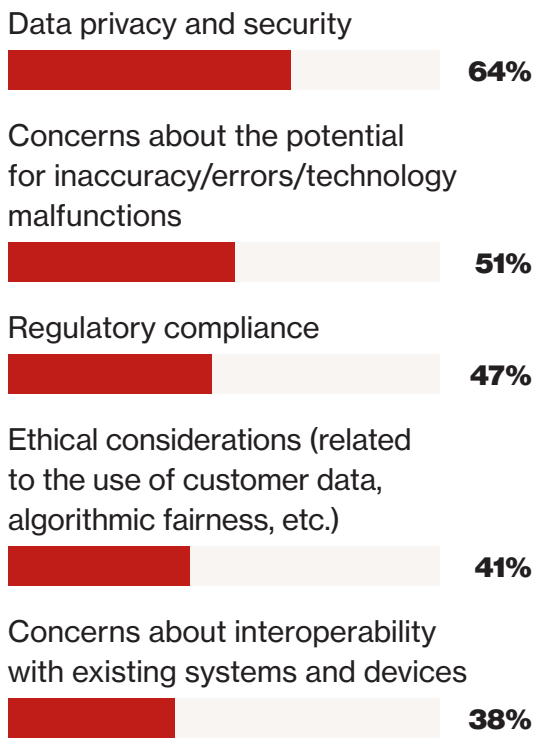
Most executives responding to the survey believe both their own companies and the financial sector as a whole are doing a good job of keeping up with AI. Seventy percent perceive

their industry as having made more progress than others, and another 28% see financial firms as at least keeping up with other industries.

Nevertheless, many have concerns that could hold them back from extending deployments and increasing their investments (see Figure 5).

Worries about data privacy and security (64%) top the list of

**Figure 5 | Top Challenges with AI**



FOUNDRY, NORTH AMERICA STUDY, 2024

challenges. With generative AI applications catching on rapidly and errors produced by the new technology widely reported in the media, 51% are concerned about potential inaccuracies or malfunctions. And nearly half of respondents (47%) in this heavily regulated sector cited potential issues with compliance.

In addition, many financial institutions have a combination of legacy and modern technology, and 38% worry about how AI will work with their existing systems. Nearly a third (29%) are concerned about the complexity of AI development and implementation or aren't sure how to get started.

“Making the right technology decisions is critical to future AI success,” Peiravi says. “As the pace of innovation accelerates, companies are feeling competitive pressure to advance, yet they fear the consequences of making the wrong moves.”

The good news is that many sophisticated AI applications are simple to integrate. And working with the right partners, firms can create a strategy that suits their individual needs and ensures smooth integration of AI technology for years to come.

Part II:  
**Forging a Path to  
AI Success**

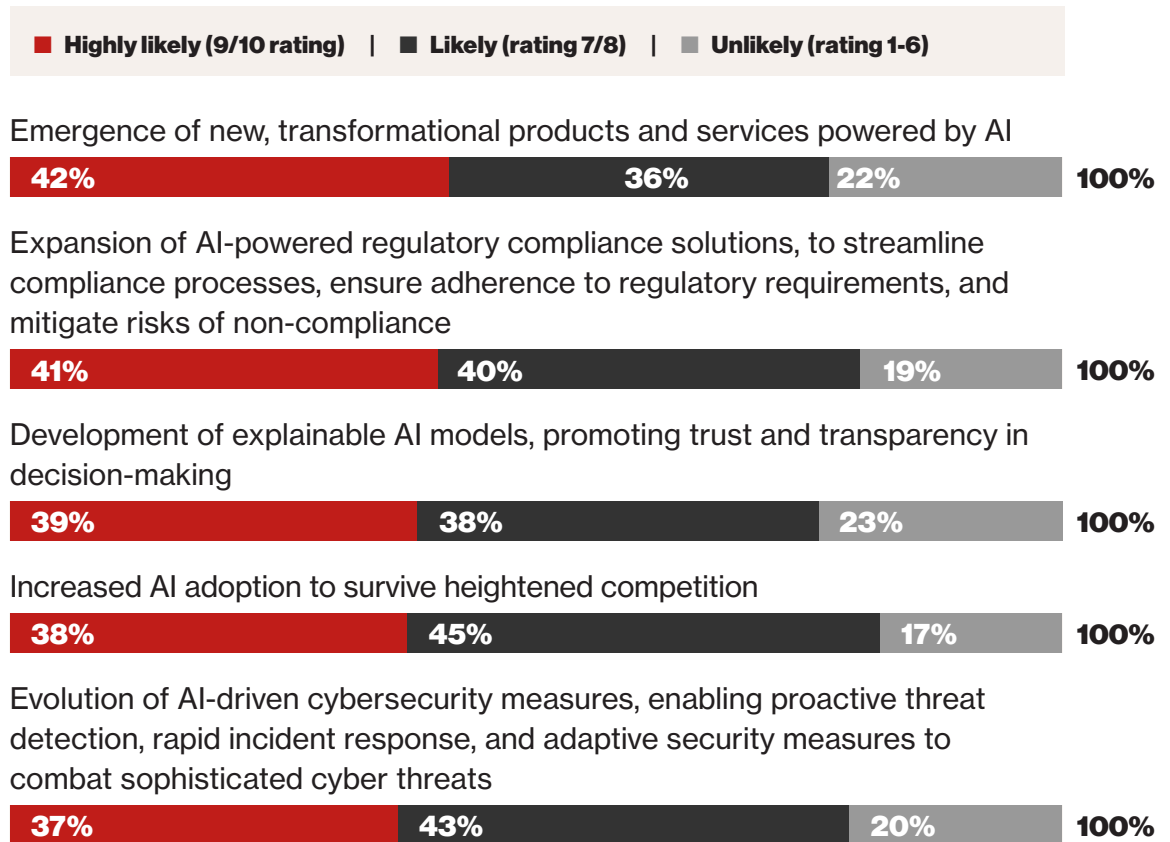
## Expected Outcomes and Visions of the Future

The survey made it clear that financial organizations' concerns about security and technology have not dampened their expectations for a bright AI future. In fact, many believe that future is right around the corner. Over three-fourths (78%) think it's likely or highly likely that transformative new

products and services will emerge to change the industry – not over the next decade or two, but within the next three years (see Figure 6). The vast majority (83%) believe adopting more AI services will help them survive increased competition.

Eighty-one percent expect to see AI-based compliance solutions hard at work three years from now, relieving

**Figure 6 | Expectations of AI's Impact on Financial Services**



SOURCE: FOUNDRY, NORTH AMERICA STUDY, 2024

humans from the task of reviewing work processes to ensure they meet exacting regulatory requirements and gathering the evidence to prove it to auditors.

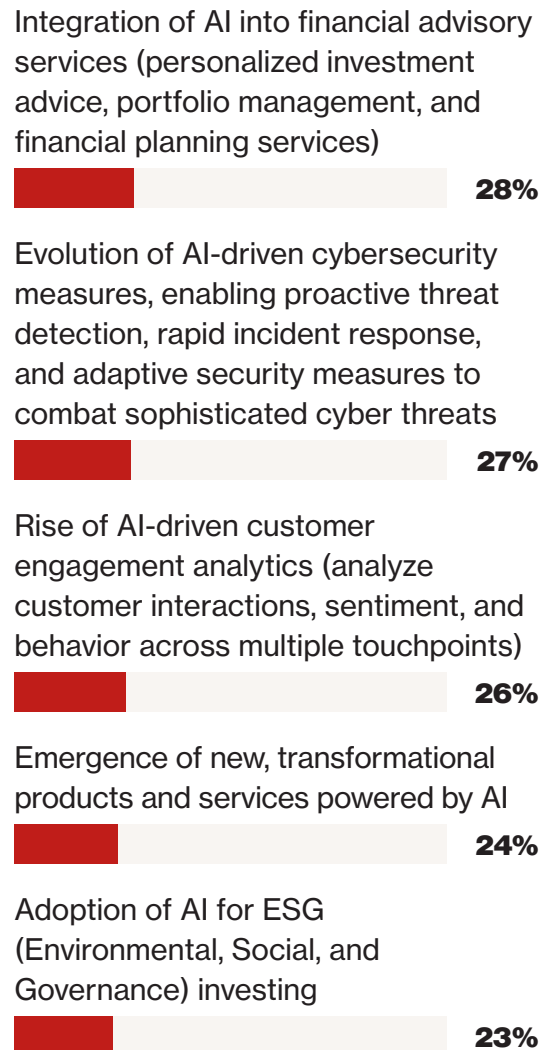
More than three-fourths (77%) expect to see explainable AI models, or XAI, in operation. A generative AI technology currently under development, XAI gives models the tools to explain their decisions, reveal their sources of information, and estimate the probability of accuracy. Removing the “black box” surrounding AI results will enable companies to use the technology with greater confidence – and guide model builders to areas that need improvement.

Most companies (80%) expect to see proactive threat detection and adaptive security measures in place, and over two-thirds (73%) believe AI will routinely be analyzing customer behavior, sentiment, and interactions with company representatives and services.

Seventy percent expect to see AI incorporated into financial advisory services, providing customers with personalized investment advice, financial planning help, and portfolio management. This use case was cited

as the most interesting AI possibility by 28% of respondents – more than any other capability (Figure 7).

**Figure 7 | Most Eagerly-Anticipated AI Use Cases**



SOURCE: FOUNDRY, NORTH AMERICA STUDY, 2024

Financial leaders are also interested in seeing more proactive cybersecurity measures introduced into the industry (27%), as well as AI customer analysis (26%), and other, yet-unspecified transformational AI-powered products and services (24%).

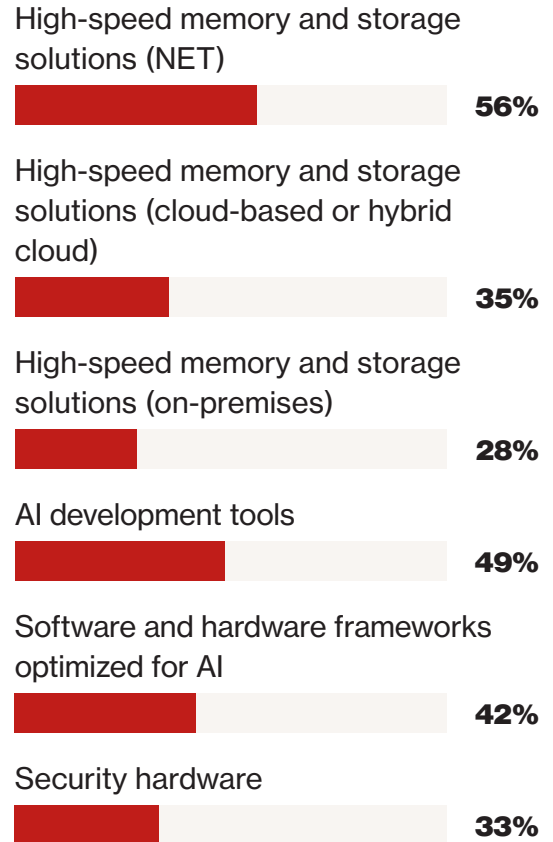
### Building an AI-Ready Toolkit

Financial firms realize that if they want to achieve their AI vision, they must have the right hardware and software in place. Tools they consider critical for supporting AI include high-performance storage, AI development tools, optimized software and hardware frameworks, and security hardware (Figure 8).

Companies need these tools for different reasons, ranging from achieving performance and efficiency goals to ensuring security and traceability:

- High-performance storage —** State-of-the-art storage enables AI to deliver results with the speed necessary for practical applications. “Though many people think AI is simply a matter of performing fast calculations, storage is an essential part of the solution,” Peiravi says.

**Figure 8 | Critical AI Technology Investments**



SOURCE: FOUNDRY, NORTH AMERICA STUDY, 2024

For example, if a bank customer asks a chatbot, “What is my portfolio balance?” the chatbot must translate the audio information into text, then search for and find the right answer in a database, convert it into conversational audio, and respond to the customer. No matter

how fast the bot can turn audio into text and vice versa, if the database search takes too long, the customer could lose patience and give up.

“You cannot have a response time of 10 seconds – it must be one second or less,” Peiravi says. “If your calculations are very fast but you can’t pull the data quickly enough for the customer, all your enhanced computational power goes to waste.”

The problem becomes even more challenging at scale. “A financial organization may be responding to 5,000 concurrent customers, using multiple servers and databases. For that, you need ultra-low latency, high-performance storage,” he notes.

■ **AI development tools and optimized software and hardware —**

To build low-latency, highly efficient AI solutions, developers need a multi-level toolkit.

“You need a complex array of tools to develop AI applications for different layers of development, including the operating system, the virtualization layer, the data optimization framework, and the AI optimization framework,”

Peiravi says. Though these tools are not available in a single package, a hardware vendor with deep AI expertise can help development teams make selections that produce the best results for creating applications that work in concert with the company’s existing technology.

■ **Security hardware —** Maintaining security and data privacy are top concerns for financial institutions, which handle both sensitive personal identifiable information (PII) and portals for payments and other money transfers. They must be able to prove to auditors that their portals are secure, and they are following all applicable regional protocols for PII at rest, in transit, and in storage.

“This is a challenging endeavor under any circumstance, and introducing AI can compound the problem,” Peiravi says. For example, chatbots can be – and have been – fooled into exposing PII and other sensitive company information.

The problem stems from the way AI is used. Though the data it handles is encrypted in storage and during transit, it must be decrypted for AI models

to analyze it. “If someone hacks the system during that time, they can steal both the data and your AI model,” Peiravi says.

To prevent such a catastrophe, Intel has developed technology that creates a secure enclave – which can be set up in the company’s data center or in the cloud – that surrounds and protects sensitive data while the model is working with it.

This is just one element of the end-to-end security financial companies need to safely deploy AI. Another critical element is device hardware with built-in, AI-powered threat detection and remote management capability. That enables security teams to identify and respond to incidents faster, before they can lead to a breach.

“There are many ways hardware architecture and design can reduce the threat of data exposure,” Peiravi says. But organizations shouldn’t rely on hardware alone to keep their information safe, he adds.

“Companies need to create strong governance protocols for managing, encrypting, and storing the data used

for AI. They should also establish AI and data literacy training so all employees understand the security challenges and know how to take advantage of AI technology safely.”

## **Emerging AI Technology: AI Accelerators and AI PCs**

In the survey, nearly three-fourths of leaders (74%) said their company is using AI software, while 37% said they are using AI hardware.

While some AI applications can be deployed simply by connecting existing software to an application programming interface (API), the technology underpinning the AI solution very likely uses AI accelerators to accomplish its tasks – even if company developers working with it in a public cloud environment are not conscious of them, Peiravi says. Accelerators are specialized hardware capabilities built into computer chips. They work with AI software to improve the processing speed and efficiency of specific workloads, such as natural language processing for chatbots or large-scale financial transaction monitoring to detect potential fraud.



By speeding calculations and processing for discrete tasks, accelerators greatly improve performance and throughput without increasing overall power needs.

“A general-purpose CPU may be able to run two AI functions per second, but an AI accelerator can run 200 functions and do it 10 times faster,” Peiravi says.

Developers can use AI accelerators for AI inferencing and model training as well, reducing costs and speeding time-to-market for new products. Accelerators can handle some of coders’ most demanding computing tasks, whether performed in the company data center or the cloud. Accelerators are also highly energy efficient, helping companies further their sustainability goals.

AI PCs – computers with a specialized chip set designed to run high-performance AI tasks locally – are a new development, but 37% of companies in the survey are already using them, and another 53% are investigating or planning to investigate them.

AI PCs use three types of processors: traditional CPUs, graphic processing units, or neural processing units, used

for natural language processing. They enable enterprise users to run AI models directly from their own machines instead of sending data to the cloud, providing a simple way for financial companies to control access to sensitive information.

Many companies use a hybrid model, running some AI tasks locally and others in the cloud. Either way, AI PCs are catching on quickly and may soon become a competitive imperative. IDC expects 167 million AI PCs will be sold by 2027 – accounting for nearly 60% of all PC shipments worldwide – up from 50 million in 2024.<sup>2</sup>

“With AI PCs, you are future-proofing your workplace, enabling employees to work more efficiently and thus, reducing costs,” Peiravi says.

Processing AI locally enables employees to provide service to customers in real time, instead of making them wait for a report. For example, an advisor or wealth manager can ask a client about their retirement goals, savings, and spending needs, entering the information into an AI model during the conversation and instantly generating various scenarios to see what time-

frames and investment choices would work best for the customer's unique situation. This would fulfil companies' top future goal for AI – integrating it into financial advisory practices.

A financial analyst or trader could use an AI PC to retrieve real-time data about a company's stock price and combine it with other information about both the company and the industry. This information could then be integrated with the firm's trading strategy parameters and the portfolio and goals of a specific customer, or a group of customers. The analyst could then make a quick, informed decision about whether to buy the stock for the customer at the current price or not.

"It's like having a virtual assistant, instead of having to visit various websites and databases," Peiravi says.

## Moving Forward with AI

As AI becomes more widespread, new applications will build on the capabilities of previous iterations, speeding innovation and spurring increased adoption in a cycle computer scientist and futurist Ray Kurzweil calls "the law of accelerating returns."<sup>3</sup> AI processes

will soon become commonplace throughout the business world, including the financial sector.

"I expect that AI and genAI will be embedded in daily workflows for nearly every aspect of financial operations. There's practically no limit to how it will be used," Peiravi says.

The process will start with workplace application APIs. "Every application will have built-in AI functions," Peiravi says.

Next, companies will start building their own standalone solutions. Instead of using general purpose large language models (LLMs), some enterprise financial institutions will create their own LLMs trained on terms and data specific to the industry.

In addition to using chatbots to answer employees' questions and create summaries and reports, firms will be deploying genAI code-assist, freeing developers from routine tasks and speeding their progress in creating a host of new AI applications, including solutions that perform much of the work for know-your-customer due diligence, underwriting, and other financial processes.

## Building an AI Ecosystem

Financial companies are no strangers to AI. But with today's advanced technologies, they are poised to amplify its benefits and reach levels of efficiency that didn't seem possible a few years ago. In addition to streamlining workflows, saving money, and proactively improving security, they can offer their customers service that is both faster and more personalized – whether that means interacting with smarter, more natural chatbots or speaking with an advisor who can instantly address the nuances of an individual's unique financial circumstances.

As AI expands throughout operations, financial companies will be implementing their own unique mix of hardware and software technologies, ranging from add-on applications to entirely new platforms and devices, such as AI PCs. Working with trusted systems integrators and OEM partners will ensure smooth integration and scaling as new products and solutions evolve.

“At Intel, we have a massive ecosystem of partners who can help you find relevant use cases and customize solutions to meet your business and technical requirements for every step of your AI journey, from exploration and proof-of-concept to enterprise deployment” Peiravi says.

To learn how Intel can help your company **use AI to accelerate operations, boost security, and transform customer service**, visit: <https://www.intel.com/content/www/us/en/now/ai-for-financial-services.html>

<sup>1</sup> Microsoft Blog, “New study validates the business value and opportunity of AI,” <https://blogs.microsoft.com/blog/2023/11/02/new-study-validates-the-business-value-and-opportunity-of-ai/>

<sup>2</sup> IDC, “IDC Forecasts Artificial Intelligence PCs to Account for Nearly 60% of All PC Shipments by 2027,” <https://www.idc.com/getdoc.jsp?containerId=prUS51851424>

<sup>3</sup> Buchanan, M, Nature Physics, “The Law of Accelerating Returns,” <https://www.nature.com/articles/nphys1010>

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