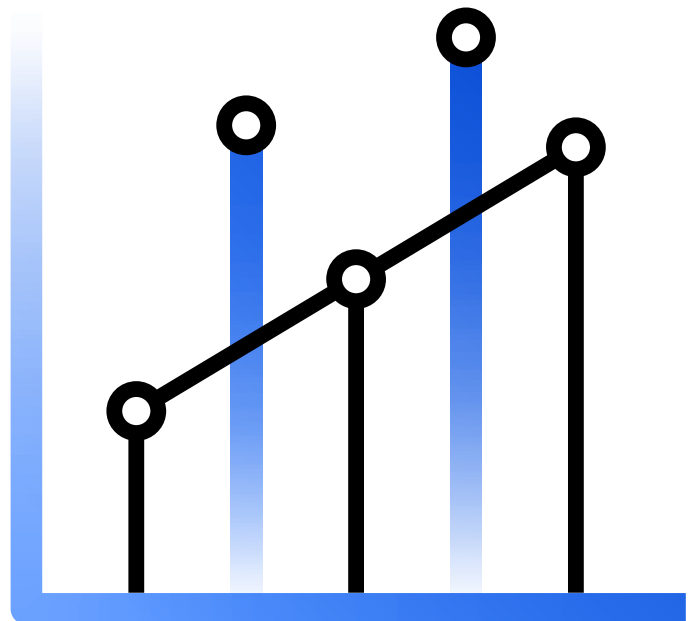OXFORD
ECONOMICS

Greater than the sum of their parts

How cloud and AI work together
in the financial services sector

In collaboration with:

IBM®

Introduction

Together, cloud and AI can address many needs for a financial services industry facing a new generation of disruptive competition. These technologies help improve operational efficiency, customer engagement and experiences, and security. Think of a routine loan approval, insurance application, or investment decision—and now accelerate and automate those processes by applying advanced analytics and algorithms to a high-quality data set in a secure environment. Multiply those operations across other product offerings and deliver at scale, and you can begin to see the impact of AI and cloud on the entire industry, including the customers it serves.

Oxford Economics and IBM recently surveyed 6,000 senior IT executives, including 1,200 from the financial services sector, to better understand strategies for cloud and AI adoption. Key findings from our analysis of financial services responses include:

- Financial services firms are on a journey to cloud adoption. Many remain in all-private environments, though hybrid multicloud environments are expected to be more common in the next two years.
- The goals for AI implementation in financial institutions are broad in scope. Respondents cite a range of growth-oriented factors, from modernizing processes to improving agility, as drivers of their technology investments. Necessary factors like data security, governance, and regulatory controls are unsurprisingly prominent concerns for financial services firms as they move workloads and development to the cloud.

- Smaller organizations are often playing catch-up. The largest financial services institutions in our sample (with over 20,000 employees) are more likely to be investing in a range of AI domains, and much more likely to say cloud supports their ROI in both business and technical areas.
- Two groups of respondents from our cross-industry sample—we call them **Cloud Strategists** and **Cloud and AI Unifiers**—are further ahead in their adoption of these technologies, and report stronger performance in some important areas such as customer service.

About the survey

Total sample: 6,000 CIOs, CTOs, VPs of IT, and equivalent titles from organizations using cloud and AI in some capacity

Sectors covered: Financial services, retail, manufacturing, telecommunications, and healthcare providers and payers

Countries covered: Argentina, Australia, Brazil, Canada, Chile, China, Colombia, Costa Rica, France, Germany, India, Italy, Japan, Mexico, New Zealand, Panama, Peru, Puerto Rico, Saudi Arabia, Singapore, South Africa, South Korea, Spain, United Arab Emirates, United Kingdom, and United States

Dates fielded: May through August 2020

The big shift
to cloud

Financial services firms, like their peers in other industries, are moving to the cloud, with many choosing hybrid environments.

A solid percentage are further ahead in their adoption of cloud (we call these respondents **Cloud Strategists**; 31% of financial services firms in our sample qualify) or both cloud and AI (we call these respondents **Cloud and AI Unifiers**; 15% qualify). These respondents are more likely to report strong performance in a range of areas, and **Cloud and AI Unifiers** from financial services are also more likely to report technical ROI from their cloud and AI investments in terms of customer service. (However, members of these groups do not outperform their peers by other important metrics, a sign that even leaders have much left work left to do.)
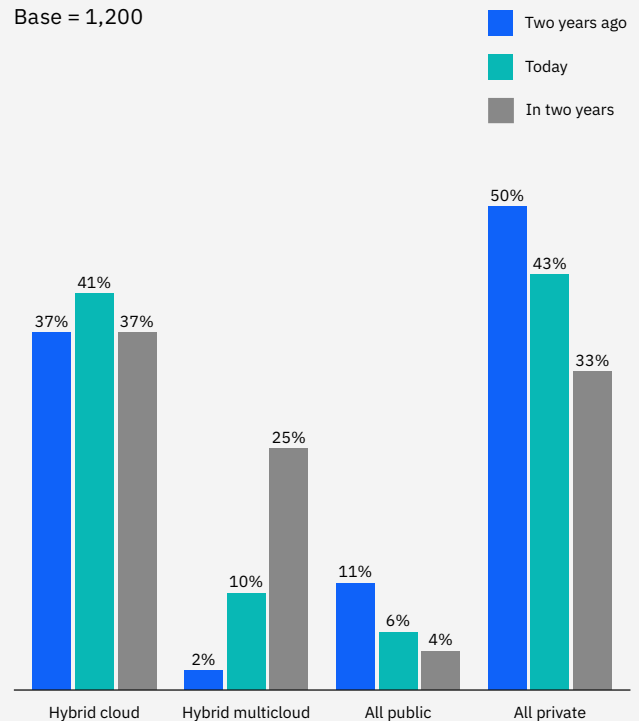
The shift to cloud as a hosting environment for opportunistic applications and storage has been under way for several years. Adoption has increased over the past two years, and that trend is expected to continue, with the average percentage of applications in the cloud expected to reach 57%.

Companies across all sectors are making the shift to hybrid and hybrid multicloud environments, perhaps according to their needs for specific applications or for risk and resiliency requirements. While 51% of financial services respondents are in a hybrid environment today, that number is expected to rise to 62% in two years.

Fig. 1: Hybrid is the dominant cloud environment

Q: Which best describes your approach to cloud usage, two years ago, today, and in two years?

Base = 1,200

Legend:
- Two years ago
- Today
- In two years

Data:
- Hybrid cloud: 37%, 41%, 37%
- Hybrid multicloud: 2%, 10%, 25%
- All public: 11%, 6%, 4%
- All private: 50%, 43%, 33%

However, the financial services sector is more likely than others to remain in an all-private hosting environment, which could be due in part to perceived or actual necessities around regulation and privacy. The use of private clouds applies to a range of workloads, from customer-facing applications and back-office operations to AI development and in-house innovation.

A CTO from one large financial services company we interviewed noted that the industry's use of private cloud may diminish as firms grow more confident in vendor cybersecurity tactics and data compliance. Operational changes brought on by COVID-19 may increase outsourcing, too. "Employees could not drive to a data center to change a server rack," the CTO says. "In the UK, you had to get permission from the government to be on the road. All these guidelines were thrown at us, and we had to navigate our way through that. It started a movement to outsource to cloud providers."

Decisions about what and how to move to the cloud vary across the financial services sector. The largest firms— those with more than 20,000 employees—are more likely than others to be in an all-private environment today (48%, vs. 41% of smaller organizations). That gap is expected to narrow in the next two years, with 35% of large firms remaining in all-private environments vs. 33% of others.

Ultimately, quantifiable returns tend to drive decisions about hosting environments—perhaps unsurprising, given the industry's strategic focus on growth and market share. ROI is cited as a top factor in decisions about where to build and host applications (41%), followed by access to blockchain (37%) and data accessibility, privacy, and residency (36%).

Top challenges to cloud implementation include difficulty deploying an adoption plan (33%), security and regulatory compliance issues (32%), change management (28%), and previous platform choices hindering adoption of digital technologies (28%). Smaller firms with fewer than 5,000 employees are more likely to cite budget issues and a lack of skills as barriers.

Transformation around AI

Positioning for long-term success will require all types of financial services firms to transform their business and operations using artificial intelligence and other emerging technologies—and to keep up with the largest firms in the sector.

AI promises transformation across the financial services sector. Virtual agents and advanced customer-service solutions can support flexible and higher-performing call centers. Predictive modeling can be applied to improve investment performance. Applications of robotic process automation (RPA) and blockchain reduce fraud and other organizational risks to boost overall financial outcomes.

The range of potential benefits may explain why top motivations for implementing AI are fairly split across a range of factors, including modernizing business processes, developing new business models, improving customer experiences, becoming more competitive, automating decision-making, and increasing agility.
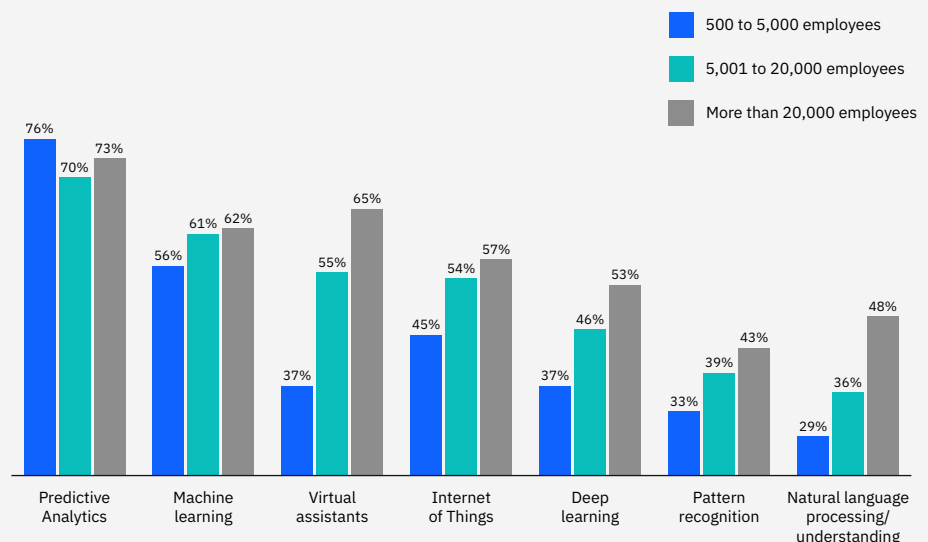
The specific applications of AI and AI-powered tools vary, too. Financial services firms are investing in a range, with predictive analytics (73%) and machine learning (60%) in focus. They are more likely than many others to be investing in deep learning (46%, vs. 40% of others) and natural language processing (38% vs. 29%). The largest companies are more likely to say they are investing in these areas.

AI implementation is not easy, even if the organizational changes are happening in parallel with broader digital transformation efforts. Top barriers at financial services firms include difficulty managing change (35%), security and compliance issues (32%), and data governance challenges (32%), all of which can be difficult to balance with the need for rapid innovation and day-to-day operational demands. Firms with fewer than 5,000 employees are more likely to cite budget issues (30%, vs. 5% of larger firms), lack of available data (25% vs. 13%), and lack of workforce skills (21% vs. 7%) as stumbling blocks.

Fig. 2: Defining AI investment

Q: In which of the following AI domains is your organization investing? Select responses shown.

Base = 1,200

Legend:
- 500 to 5,000 employees
- 5,001 to 20,000 employees
- More than 20,000 employees

Domain	500 to 5,000	5,001 to 20,000	More than 20,000
Predictive Analytics	76%	70%	73%
Machine learning	56%	61%	62%
Virtual assistants	37%	55%	65%
Internet of Things	45%	54%	57%
Deep learning	37%	46%	53%
Pattern recognition	33%	39%	43%
Natural language processing/ understanding	29%	36%	48%

The cloud
and AI payoff

The financial services sector is often a top performer in terms of digital transformation. 15% of respondents from the industry qualify for the subset of our survey furthest along in adopting both cloud and AI. (Manufacturing and retail are both above 15%.) This group is more likely to say cloud accelerates ROI.

Well over three-quarters (82%) of financial services executives see a unified platform for cloud, data, and AI as critical to their organization's success in the long term, and 77% say cloud is a critical foundation for data management and AI. Top advantages of using cloud for AI include better customer experiences (cited as a major advantage by 35%), more flexibility (34%), and better-quality products and services (31%).

The financial services CTO we interviewed says the firm uses machine leaning to simulate market conditions and improve investment trading outcomes. "Without cloud, [running these simulations] used to take days. Now it can take hours or minutes," says the CTO. "This type of scale was never accessible before."

Many see their use of cloud as important to outcomes. Over two-thirds say cloud has accelerated ROI in terms of customer experience, and 63% say it has improved efficiency in business operations.

These performance improvements help explain why many consider these technologies as part of a unified strategy. Along with predictive analytics, cloud is more likely to be used in combination with AI than any other technology.

Our analysis of the survey data identified two groups of respondents ahead in adopting cloud and AI.

– To qualify for the **Cloud Strategists** group, respondents must report a higher-than-average percent of applications in the cloud two years ago, today, and expected in two years. Nearly one-third (31%) of financial services respondents qualify, a higher percentage than the cross-sector average.
– To qualify for the **Cloud and AI Unifiers** group, respondents must meet the above criteria; report that more than one-fifth of new applications incorporate AI; use cloud in combination with AI; and agree that a unified platform for cloud, AI, and data is critical to success. 15% of financial services respondents qualify, a somewhat higher percentage than the overall sample.

These respondents are more likely to report strong performance in a range of areas. **Cloud and AI Unifiers** from financial services are also more likely to say their use of cloud has accelerated ROI in a range of areas, including efficiency in business operations, competitiveness, and the development of AI applications. Both **Cloud and AI Unifiers** and **Cloud Strategists** report higher technical ROI from their cloud and AI investments in terms of customer service. However, even early adopters have work left to do to get full value from cloud and AI.
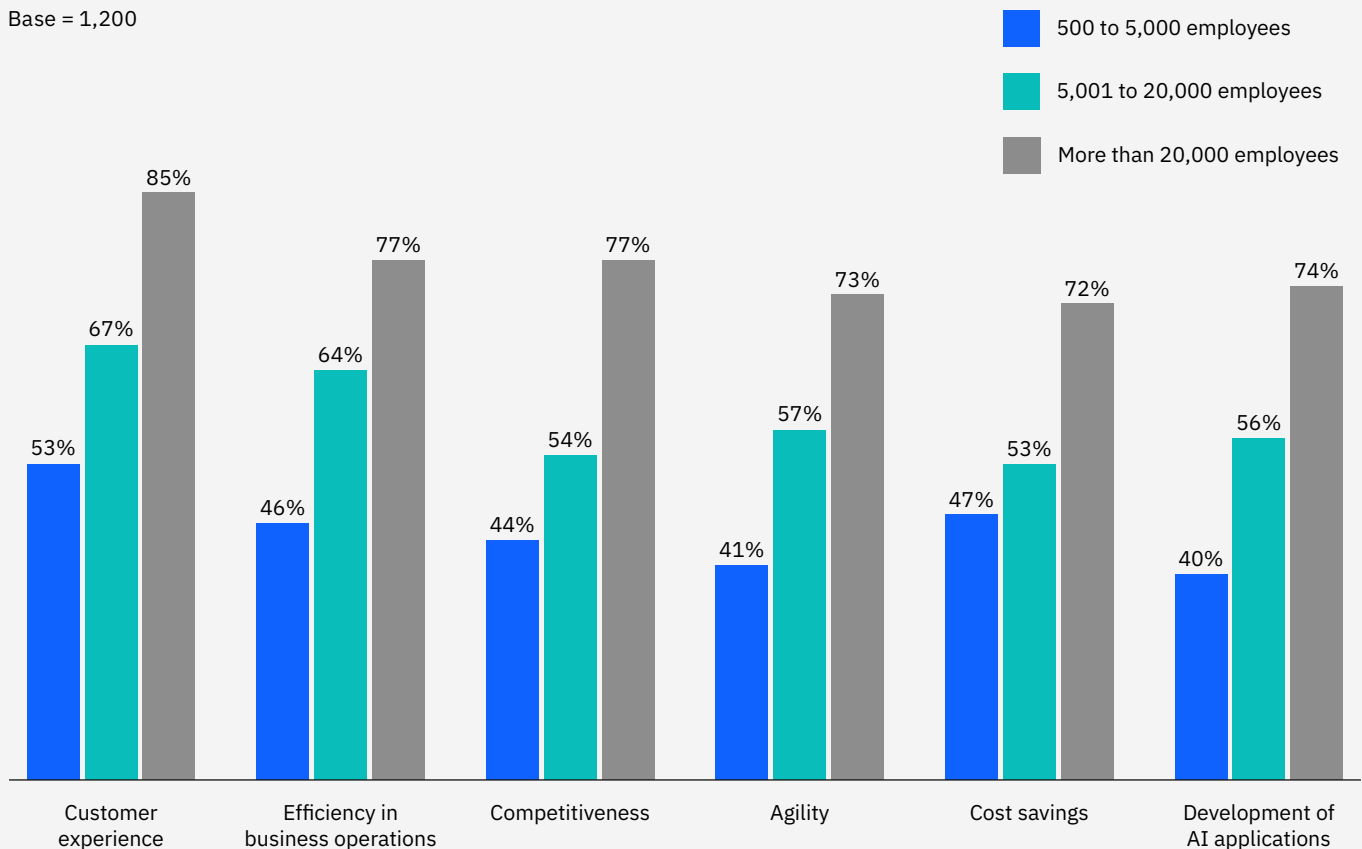
The development of AI applications benefits from cloud, too. Executives say cloud is critical to determining which AI projects to pursue (46%), scaling AI applications (44%), facilitating data-sharing (43%), and expanding the network of AI developers (42%)—numbers broadly in line with cross-sector averages. Larger organizations tend to be more likely to emphasize the value of cloud to AI, as are larger organizations. More than half (55%) of financial services firms with more than 20,000 employees say cloud is critical to the overall success of AI applications, vs. 43% of others, and the largest firms are much more likely to say cloud has accelerated business returns in a range of areas, from customer experience to agility.

Fig. 3: How cloud accelerates ROI

Q: To what extent has your organization's use of cloud enabled or accelerated your positive return on investment (ROI) in the following areas? "To a significant extent" and "Meaningfully" responses; top six responses shown.

Base = 1,200

Legend:
- 500 to 5,000 employees
- 5,001 to 20,000 employees
- More than 20,000 employees

Category	500 to 5,000 employees	5,001 to 20,000 employees	More than 20,000 employees
Customer experience	53%	67%	85%
Efficiency in business operations	46%	64%	77%
Competitiveness	44%	54%	77%
Agility	41%	57%	73%
Cost savings	47%	53%	72%
Development of AI applications	40%	56%	74%

Conclusion

The rapid adoption of cloud and AI is expected to transform the financial services industry in nearly every respect, from how decisions about investments and risk are made to the ways institutions interact with customers.

For more information about how companies across sectors are adopting cloud and AI, and best practices for implementing the technologies, see the full research report.