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Greater than the sum of their parts

How cloud and AI work together
in the retail sector

In collaboration with:



Introduction

Retailers are using cloud and AI applications to enhance their performance online and in physical stores. Customer experience is a priority, from virtual service agents to personalized product recommendations, optimized deliveries, and nimble inventory management. Retailers, already dealing with disruption to their traditional business models, were hit particularly hard by the pandemic, adding urgency to the cloud and AI journey.

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

- Retailers are steadily adopting cloud, with many shifting to a hybrid or hybrid multicloud environment.
- Customer experiences and customer satisfaction define success for most retailers, who are moving customer-facing application workloads to the cloud and seeing early returns from their efforts in terms of customer service.
- Organizational challenges like difficulty managing change or creating an adoption plan often stall cloud and AI adoption; budget and workforce concerns are also an obstacle for smaller retailers.
- Cloud is seen as critical to AI strategy in a range of areas. Retailers furthest along in adopting both technologies are more likely than all others to say cloud has accelerated ROI in a range of areas, including efficiency in business operations, workforce skills, and agility.

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: Retail, telecommunications, manufacturing, financial services, 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 the United States

Dates fielded: May through August 2020

The big shift to cloud

Retail's ongoing digital transformation around omnichannel networks, flexible supply chains, and personalized customer experiences depends on advanced analytics, fast insights, and the cloud strategies to support all these things. Two subsets of respondents are further ahead in their adoption of cloud (we call them Cloud Strategists; 29% of retailers in our sample qualify) or both cloud and AI (we call them Cloud and AI Unifiers; 17% qualify).

Cloud Strategists and **Cloud and AI Unifiers** are more likely to say their technology operations around security, infrastructure, applications, and other areas are effective in terms of delivering value, and Cloud and AI Unifiers are more likely to say their use of cloud has accelerated ROI in a number of areas. However, even these early adopters have work to do before they realize substantial technical and business ROI from their combined cloud and AI efforts.

The shift to cloud hosting environments is well under way across the retail sector. While just 22% of applications, on average, were in the cloud two years ago, retailers say that number has risen to 40% today and is expected to reach 57% by 2022—and 61% say investing in cloud has become more important since the start of the COVID-19 pandemic.

Across industries, organizations are shifting to hybrid cloud and hybrid multicloud hosting environments (meaning a combination of private and public clouds, as well as locations or cloud devices). This trend is especially clear in retail, where 73% (vs. 64% of the cross-sector average) are in a hybrid environment today, and 80% (vs. 73%) expect to be in two years' time.

The growing use of hybrid environments could reflect retailers' focus on digital customer experiences, which increasingly rely on flexible infrastructure. In fact, customer-facing applications are among the workloads most likely to be in a hybrid environment today (61% of retailers say so), along with AI application development (61%) and Big Data or machine learning (57%) tasks—both of which could also support improved experiences for customers.

Those who describe their hosting environment as hybrid multicloud are more satisfied with that environment than users of other cloud types, a trend consistent with responses from many other sectors. Nearly half (49%) of hybrid multicloud users from the retail industry are highly satisfied with their hosting environment, vs. 22% of hybrid cloud and private cloud users and just 10% of public cloud users.

Organizational—rather than technological—challenges, tend to stall cloud onboarding, with difficulty deploying an adoption plan, managing change, and determining where applications should be hosted cited as the biggest obstacles. Ultimately, quantifiable returns tend to drive strategy: ROI is the retail industry’s top factor in decisions about where to build and host applications, followed by complexity of the business application and relative need of scalability.

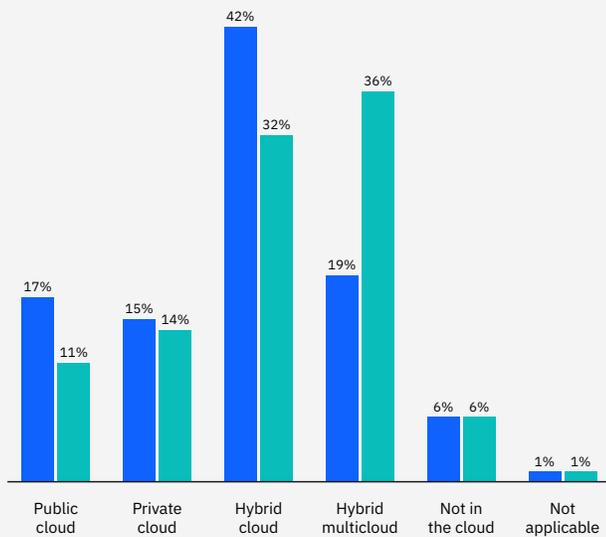
Retailers of different sizes must approach their technology adoption differently, given available resources, customer needs, and economic realities. The smaller retailers in our sample are more likely to be in an all-public cloud environment today (29%, vs. 11% of larger companies), and the largest in our survey—those with more than 20,000 employees—are more likely to be in an all-private environment. Challenges vary by size, too, with the smallest retailers more likely to cite budget issues, lack of skills in the organization, and lack of support from senior management.

Fig. 1: Workloads in the cloud, today and in two years

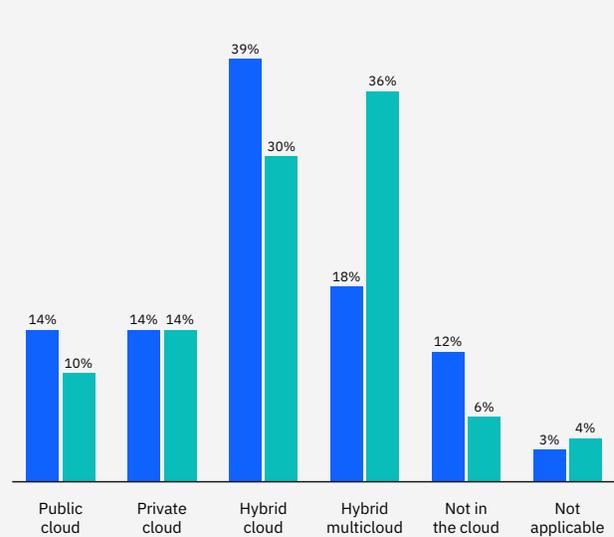
Q: Which types of workloads are in the cloud at your organization, and where are they hosted? In two years? Select options shown.

Base = 1,200

Customer-facing applications



Big Data or machine learning workloads



AI-driven customer experience

Meeting customer needs depends on optimizing more than just the final service delivery. Retailers must build responsive supply chains, optimize operations, consider customer interactions across all channels, and increasingly offer personalized experiences. Getting all of these things right will require retailers of all sizes and IT maturity levels to integrate artificial intelligence into existing processes and IT infrastructures.

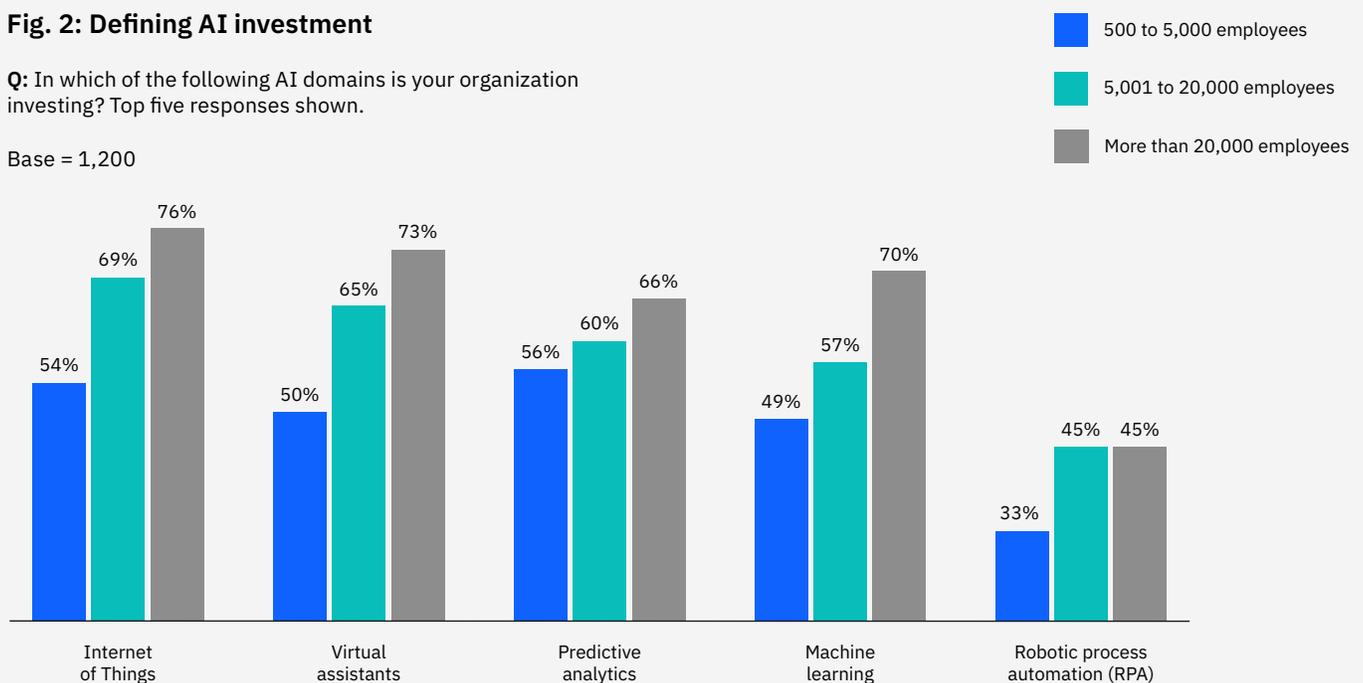
There is no single motivating factor for implementing AI. Modernizing business processes and improving customer experiences are top drivers of AI implementation, but automation, the development of new business models, and increased competitiveness are not far behind on the priority list.

This range of potential business applications may be due to the nature of AI and the technologies it enables. When we asked respondents which AI domains their organization is investing in, IoT, virtual assistants, predictive analytics, and machine learning surfaced as top of mind. These technologies may be deployed in different parts of the business: for example, virtual assistants may support call-center employees while predictive analytics identifies short- and long-term supply chain risks and changing customer demands.

Fig. 2: Defining AI investment

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

Base = 1,200



Large retailers are further ahead in technology adoption, indicative of a digital divide seen in other sectors as well. Nearly three-quarters (73%) of retailers with more than 20,000 employees are investing in virtual assistants, vs. 59% of smaller organizations surveyed. They also are further ahead in IoT (76% vs. 63%) and machine learning (70% vs. 54%), and are more likely to say AI already has been deployed in customer service, process automation, IT operations, and other areas.

Many organizations are plagued by familiar challenges as they implement AI. Top barriers to adoption include difficulty managing change (36%) and creating an adoption plan (32%), along with difficulty determining where data should be hosted or building models with multiple AI providers (29% each).

The cloud and AI payoff

When it comes to their combined investments in cloud and AI, retail firms are seeing payoffs in customer satisfaction and experience. Roughly 17% of retailers fall into the subset of respondents whose organizations are further along than others in terms of both cloud and AI adoption, a group more likely to say cloud accelerates ROI in a range of areas.

Retailers' top advantages of using cloud for AI include better customer experiences (cited as a major advantage by 37%), better-quality products and services (31%), more flexibility (28%), and developing new products and services (27%).

These advantages help explain why many are already thinking of cloud and AI as part of a unified strategy. Well over three-quarters (79%) of retail IT executives—a higher percentage than the overall sample—see a unified platform for cloud, data, and AI as critical to their organization's success in the long term. A similar number (77%) say cloud is a critical foundation for data management and AI, and that cloud is used in combination with AI (75%). In fact, cloud is more likely to be used in combination with AI than any other technology, including IoT, mobile devices, and predictive analytics.

Our analysis of the survey data identified two groups of outperformers 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. 29% of retail firms in our sample qualify.
- 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. 17% of retail firms in our sample qualify.

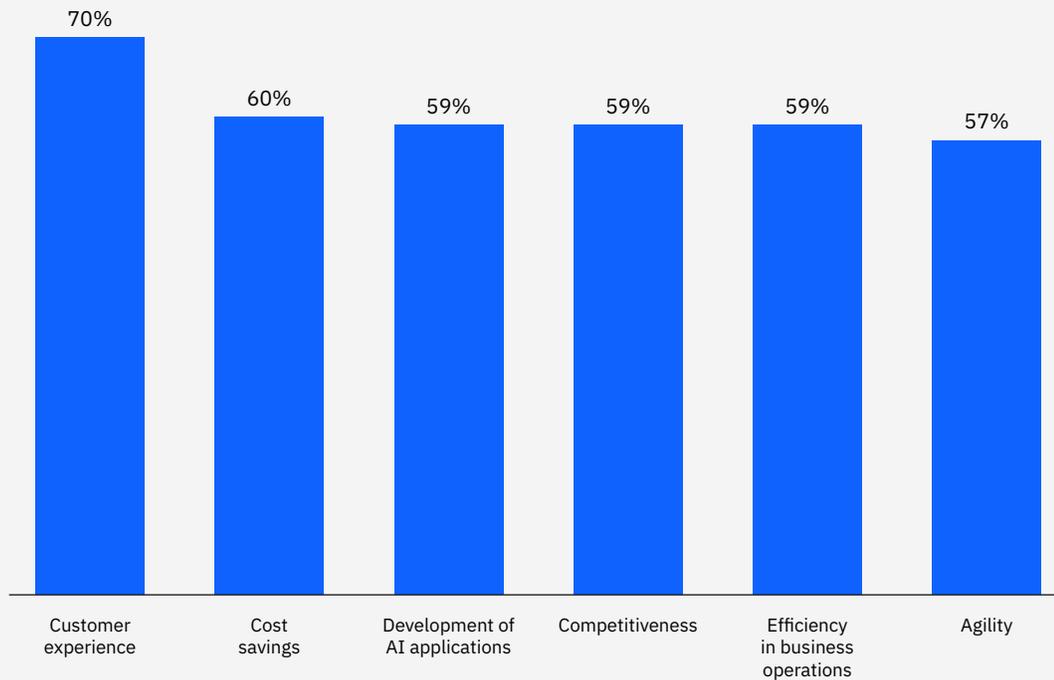
These respondents are more likely to report strong performance in some areas; **Cloud Strategists** and **Cloud and AI Unifiers** are more likely to report ROI from their combined cloud and AI projects in terms of customer service; **Cloud and AI Unifiers** from the retail sector are also more likely than all others to be getting value in terms of human resources and financial operations. However, even early adopters have work to do to realize full value from cloud and AI.

Many see their use of cloud as substantially important or critical to AI in terms of facilitating data-sharing (48%), facilitating analytics and machine learning (46%), expanding the network of developers for AI applications (45%), and hosting AI applications (47%). Nearly three-quarters say cloud has accelerated ROI in terms of customer experience (70%)—and customer service is the top-cited area of business ROI.

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



Conclusion

The rapid adoption of cloud and AI is expected to transform retail for years to come as the sector looks to meet evolving customer needs, increase visibility into the supply chain, develop new products and services, and stay competitive against giants in the industry.

As platforms and customer experience requirements change, retailers are looking to technology to help add more value by reducing resource challenges and increasing innovation opportunities inside and outside their organizations. Cloud and AI together have been shown to deliver value to these retail businesses, though the potential is yet to be fully realized.

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](#).

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