

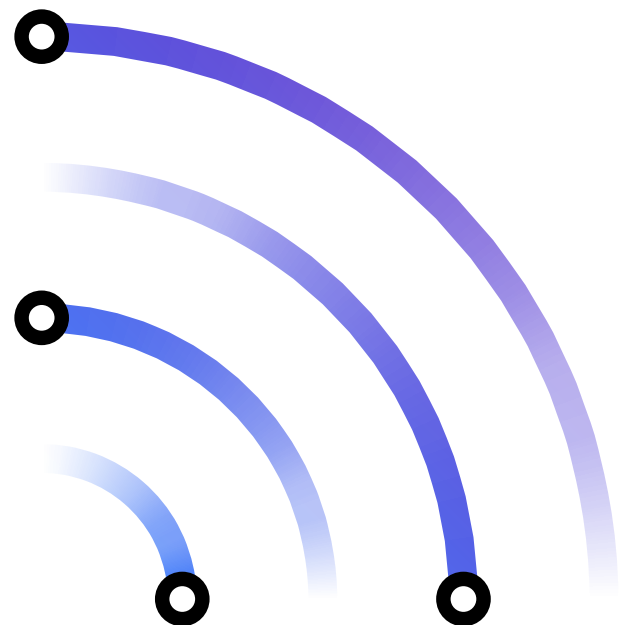


OXFORD  
ECONOMICS

# Greater than the sum of their parts

How cloud and AI work together  
in the telecommunications sector

In collaboration with:



# Introduction

The future of telecom depends on AI and cloud. The industry needs these technologies to manage increasingly complex network operations, improve customer experiences from the call center to cutting-edge apps, and ultimately to capture the immense value of 5G.

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

- Telecommunications firms are steadily adopting cloud, with many shifting to a hybrid or hybrid multicloud environment even as they struggle to make decisions about where to host various applications.
- Top motivations for implementing AI in telecom include modernizing processes, improving customer experiences, and increasing competitiveness—all factors that should help the industry reach big-picture goals around innovation.
- Knowing where to host applications and how best to adopt emerging technologies are challenges to cloud and AI adoption; budget and efficiency concerns are an obstacle for smaller telecoms.
- Cloud is seen as critical to AI strategy, and is accelerating ROI in terms of customer experiences, operational efficiency, agility, and other areas.
- Two groups within 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 process automation and customer service.

AI and cloud allow telecoms to create smart networks that anticipate demand to deliver better service. And, according to IBM's Institute for Business Value, these technologies are central to getting the most out of next-generation 5G networks—the defining task for telecom companies for years to come, along with increased automation and agile service operations.<sup>1</sup>

## 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:** Telecommunications, retail, 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 United States

**Dates fielded:** May through August 2020

# The big shift to cloud

**Telecommunications firms, like their peers in other industries, are focused on cloud adoption, and are choosing hybrid cloud or hybrid multicloud environments as they make the shift.**

A solid percentage of respondents are ahead in their adoption of cloud (we call these respondents **Cloud Strategists**; 22% of telecoms in our sample qualify) or both cloud and AI (we call these respondents **Cloud and AI Unifiers**; 11% of telecoms qualify). **Cloud and AI Unifiers** from the telecommunications sector are more likely than other telecoms to report business value from their combined cloud and AI projects in terms of process automation, and more likely to report technical value 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.)

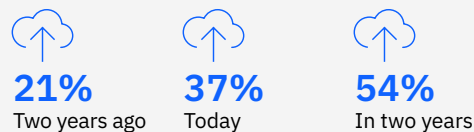
Fast, flexible networked services—and the opportunity to harness 5G—increasingly rely on virtualized, seamless cloud-based infrastructure. The dependence of the industry’s core business model on this scalability may be why nearly two-thirds of survey respondents (64%) from telecommunications say cloud and AI will be critical to their industry’s success in the long term.

Telecom’s shift to the cloud has long been underway. While telecommunications executives in our sample report a somewhat lower average percentage of applications in the cloud compared with other sectors, adoption has increased over the past two years, a trend expected to continue over the next two years.

**Fig. 1: Cloud migration is under way**

Q: What percentage of your applications were in the cloud two years ago? What percentage are in the cloud today? What percentage do you expect to be in the cloud in two years?

Base = 1,200



Telecoms are making the shift to hybrid and hybrid multicloud, likely an effort to support the goal of choosing the right hosting environment and partners for specific needs. Nearly two-thirds (63%) of telecommunications firms are in a hybrid environment, on par with the survey average. However, adoption strategies look different across the sector. A solid percentage remain in an all-public cloud environment (18%, vs. 14% overall), with Latin American telecoms most likely to say this is the case (23%). At the same time, many still want to use private cloud for certain purposes (for example, intellectual property and finance).

Making these complex decisions about what and how to move to the cloud is no easy task. In fact, difficulty determining where applications should be hosted is cited as the top barrier to adoption by telecommunications respondents, along with difficulty deploying an adoption plan and managing change across the organization.

Ultimately, quantifiable returns tend to drive cloud strategy. ROI is cited as telecom’s top factor in decisions about where to build and host applications, followed by data accessibility and privacy, and the complexity of the business application.

# Networking for AI

**Artificial intelligence—supported by cloud, data, and other emerging technologies—is essential to the transformation of telecom organizations as they respond to the challenges and opportunities of the coming years.**

Modernizing processes and improving customer experiences are top motivators for implementing AI among the telecoms we surveyed—factors that may be especially important considering that industry executives are more likely to cite innovation as a core strategic goal than leaders from other sectors.

Not all companies (or even executives) define AI the same way. When asked which AI domains their organization is investing in, a range of tools surfaced as the top responses among telecoms (see Fig. 2). These organizations also are more likely than others to be investing in virtual assistants (61%, vs. 49% of all others), which are increasingly critical to providing direct customer support as well as help for call-center employees during the COVID-19 pandemic.

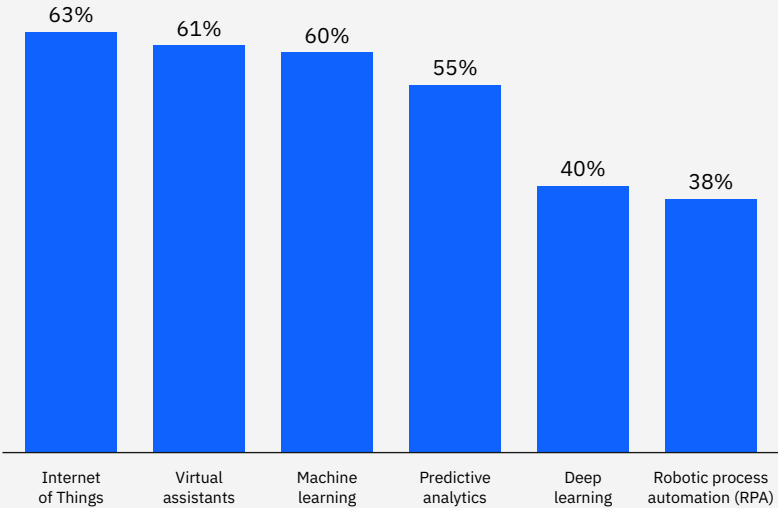
Many telecoms are plagued by the same kinds of challenges around AI adoption that they face in their cloud efforts. Top barriers include difficulty determining where data/applications should be hosted (35%), creating an adoption plan (33%), and managing change (32%).

AI adoption is uneven across the industry, with the largest telecoms more likely to have invested in a wide range of AI domains, especially machine learning. (This is likely due at least in part to resource constraints, as smaller telecoms are more likely than others to cite cutting costs and boosting efficiency as a primary motivation for AI adoption, and are more likely to cite budget issues as a barrier.) Meanwhile, lack of workforce skills is cited as a bigger barrier to AI adoption among telecoms in Latin America (16%, vs. 12% overall).

**Fig. 2: Defining AI investment**

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

Base = 1,200



# The cloud and AI payoff

**Telecommunications organizations are beginning to see cloud and AI as part of an overarching strategy, and expect substantial payoffs from their combined investments. Those furthest ahead in adopting the technologies are more likely to say cloud accelerates ROI.**

Top advantages of using cloud for AI include better customer experiences (cited as a major advantage by 35%), better-quality products and services (34%), more flexibility (30%), and the development of new products and services (28%).

Telecom executives are more likely than their peers from other sectors to cite improved employee experiences as a major advantage of using cloud for AI (27% vs. 23%), which could tie back to virtual-agent support for call-center employees or improved decision-making around network reliability from predictive analytics.

These advantages help explain why many are already thinking of cloud and AI as part of a connected strategy. Nearly three-quarters of telecommunications executives—less than the overall sample, but still a sizable majority—see a unified platform for cloud, data, and AI as critical to their organization's success in the long term. A similar number (71%) say cloud is a critical foundation for data management and AI.

Our analysis of the survey data identified two groups of respondents who are 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. Over one-fifth (22%) of telecom respondents 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. 11% of telecom respondents qualify.

These respondents are more likely to report strong performance in a range of areas; **Cloud and AI Unifiers** from the telecommunications sector also are more likely to report business value from their combined cloud and AI projects in terms of process automation, and more likely to report technical value in terms of customer service. However, even leaders have much left work left to do to realize value from cloud and AI.

Cloud is more likely to be used in combination with AI than any other technology, including IoT, mobile devices, and predictive analytics: over three-quarters of telecom respondents (77%) say cloud is used in combination with AI. Many respondents see their use of cloud as important in terms of determining which AI projects to pursue (47%), scaling AI applications (44%), facilitating data-sharing (44%), and expanding the network of AI developers (42%)—numbers broadly in line with cross-sector averages.

Some cloud users are quicker to see payoffs than others. While 43% of telecom executives say cloud is substantially or critically important to the success of AI applications, that number tends to vary by region, with North America the leader at 51% and Latin America—those likeliest to be in a public cloud environment—the laggard at 39%.

**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 five responses shown

Base = 1,200



# Conclusion

The rapid adoption of cloud and AI is expected to transform the telecom industry for years to come as the industry seeks efficiency in providing services, innovation in the embrace of 5G, and growth in customer satisfaction and other areas.

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

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