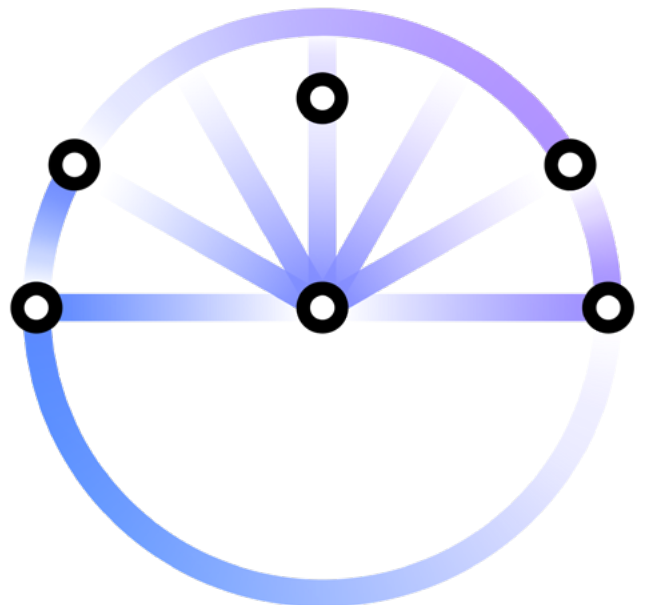


Driving digital transformation

Exploring the impact of a unified data and AI strategy

In collaboration with:



Introduction

As companies across sectors and regions transform with artificial intelligence (AI), research conducted by Oxford Economics and IBM shows that some organizations are substantially ahead of others. We call these outperformers—defined by their advanced adoption of both cloud and AI—**Cloud and AI Unifiers**.

This elite group of respondents is more likely than others to report business ROI from combined cloud and AI investments in terms of financial performance and business operations, and to say their use of cloud has enabled or accelerated ROI in customer experience, the development of AI applications, and many other areas.

To assess progress toward cloud and AI and to better understand what those furthest along are doing differently than their peers, we surveyed 6,000 senior IT executives from organizations around the world. Our analysis of the outperformer group, which accounts for 13.5% of the overall sample, underscores the strategic importance of artificial intelligence, data, and cloud.

As CIOs and CTOs continue to take a more strategic role in leading innovation and digital transformation efforts, pursuing digital technologies as part of a cohesive, organization-wide strategy should help them manage change and improve performance.

About the survey

Total sample: 6,000 CIOs, CTOs, VPs of IT, and equivalent titles

Sectors covered: Retail, manufacturing, financial services, 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

Who is a Cloud and AI Unifier?

Respondents who lead their peers in terms of progress toward cloud and AI adoption met the following criteria:

- Must have had at least 20% of applications in the cloud two years ago
- Must have at least 40% of applications in the cloud today
- 21% or more of new applications incorporate AI
- Must use cloud in combination with AI
- “Agree” or “Strongly agree” that a unified platform for cloud, data and AI is critical to their organization’s success in the long term

n=809 respondents, 13.5% of respondents

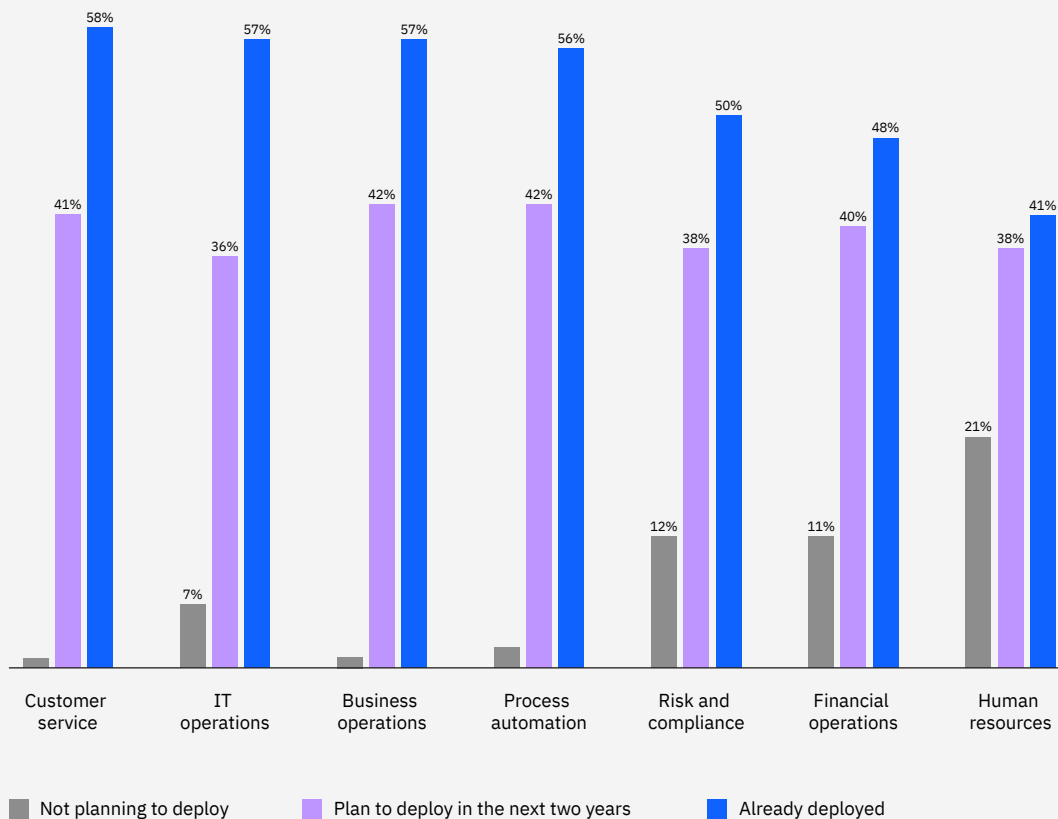
Putting AI at the center of strategy

AI is at the center of strategy for organizations across sectors. Transformation to date has been striking: on average, one-fifth of new applications developed incorporate AI, and more than half of organizations surveyed have already deployed AI in both back-office and customer-facing functions, including customer service (58%), IT operations (57%), business operations (57%) and process automation (56%).

Momentum is likely to accelerate as organizations look to maximize efficiency and resilience in the wake of the global pandemic. At least half of IT executives say investing in cloud (59%) and AI (50%) has become more important as a result of COVID-19, and nearly as many (47%) are increasing their overall spending and investments in response.

Fig. 1: AI deployment across functions, now and in two years

Q: In which of the following areas has your organization deployed AI?
In which areas do you expect to deploy AI in the next two years?



“It’s going to be a main differentiator for sure,” says Gus Shahin, the Chief Information Officer of Flex Ltd., a Singapore-based manufacturing firm with over \$25 billion in revenue. The company is in various stages of implementing AI across its business—including automating contracts, performing predictive maintenance on its mission-critical systems, and forecasting demand using advanced supply chain analytics. Mr. Shahin expects these efforts to figure even more prominently in company strategy in the years ahead. “It’s got visibility from the CEO down.”

Senior IT executives from our survey expect major investments in AI also. Three-quarters agree that the effective use of AI will be critical to their organization’s success in the long term. Cloud and AI Unifiers furthest along in adopting cloud and AI are unsurprisingly even more focused on the strategic value of AI.

“At Flex, artificial intelligence is a strategic focus. It’s got visibility from the CEO down.”

Different functions and industries may focus on particular AI-enabled tools, but most of these technologies are seeing heavy investment across the board, including machine learning and IoT (61% each), predictive analytics (60%), and virtual assistants (51%). These tools are increasingly intertwined, with cloud being the top technology used in combination with AI for processes, products, and other services in production.

Motivations for implementing AI are diverse, including modernizing business processes (24%) and products or services (21%), automating decision-making (22%), improving customer experiences (21%), and automating workflows and processes (21%). These drivers can vary based on an organization’s industry, size, or individual needs. For example, the smallest companies in our sample—those with less than \$250 million in revenue—are more likely to cite cost-cutting as a driver, while larger organizations are somewhat more focused on becoming more competitive.

A unified strategy for accelerated transformation with cloud, data, and AI

Modern CIOs and CTOs play a major role in the executive suite, with responsibilities that go far beyond the bounds of managing technology infrastructure. Senior IT respondents from our survey cite leading innovation and digital transformation across the organization among their top strategic priorities—efforts that can make or break a company.

Transformation around new technologies is a complex job. Various AI-enabled tools may be in different stages of adoption across the organization, and the shift often requires operational and workforce changes that are hard to coordinate. That may be why a unified technology strategy around cloud, data, and AI is so important to our survey respondents (and is the reason we considered it a qualifying benchmark for the outperformers in our sample).

Managing sometimes competing goals for digital transformation—like process efficiency, product and service innovation, or analytics-based decision-making—requires flexibility around strategy and technology. Our research shows that, as companies focus on cloud as a foundational piece of their technology infrastructure, a majority—especially the largest firms surveyed—are moving toward hybrid and/or hybrid multicloud environments.

Fig. 2: The shift to hybrid cloud

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

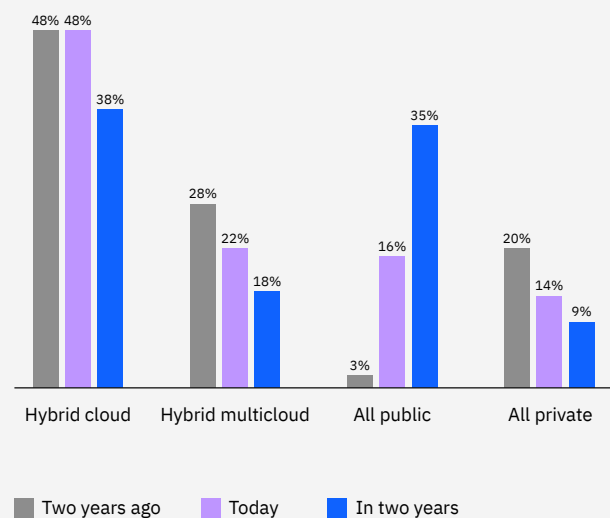


Fig. 3: COVID-19 is driving further investments in Cloud and AI

59% of IT executives say investing in cloud has become more important as a result of COVID-19.

50% of IT executives had the same response for investing in AI.

47% of IT executives are increasing their overall spending and investments in response.

“We are trying to move to a model that is cloud-agnostic,” says a CTO from a large financial services institution that has focused its digital transformation on applying machine learning to its wealth of data on market conditions and trading patterns. The company’s flexible cloud-based model allows its IT shop to run strategic digital transformation projects far more efficiently than it would using its own servers, and to meet the firm’s risk and resilience requirements.

Cloud and AI Unifiers—who are more likely than others to be in a hybrid multicloud environment—may be best poised to move quickly on digital transformation, given their focus on creating a cohesive technology and data strategy. Well over three-quarters (80%) of Cloud and AI Unifiers say they are effective in data-sharing internally, compared with 73% of others. They also are more confident in data-sharing with external partners (69% Cloud and AI Unifiers, vs. 57% of others).

These outperformers also understand the importance of a flexible, cloud-enabled AI strategy. On average, 27% of AI applications are enabled by hybrid multicloud across our sample today—up from just 13% two years ago. For Cloud and AI Unifiers, that number is 32% today, compared to 18% two years ago.

“We are trying to move to a model that is cloud-agnostic.”

— Chief Technology Officer

Large financial services institution

Fig. 4: AI apps growing on hybrid cloud

Outperformers are adopting a flexible, cloud-enabled AI strategy to accelerate digital transformation.

Cloud and AI unifiers see a jump in AI apps enabled by hybrid multicloud.



18%
Two years ago



32%
Today

Overcoming AI-at-scale challenges

Adopting AI comes with its share of challenges. Organizations are likely to face a number of barriers along the maturity curve, from skills gaps to process change.

At one large health system in the United States, the Chief Medical Information Officer says AI is increasingly woven into hospital tools and procedures—but not always welcomed by physicians. “It doesn’t matter if you show all the studies, if you show how it’s faster than the prior processing,” says the CMIO. “Doctors don’t want the computer to take over.” Early resistance means the health system focuses on applications that save physicians time and allow them to focus on higher-level work, like natural language processing tools that support note-taking, or machine learning tools that perform routine skin exams.

Across sectors, managing change is cited as the top obstacle to successful AI implementation, followed by difficulty deploying an adoption plan. But challenges can vary based on how far along into the adoption journey an organization is. For example, respondents from companies furthest behind in their adoption of cloud and AI are more likely to cite immaturity of technology on the market, budget issues, and lack of workforce skills as barriers to their AI adoption. But Cloud and AI Unifiers—those furthest along in adoption AI—are somewhat more likely to cite more advanced issues, such as difficulty building and managing models with multiple AI providers; difficulty curating relevant data to leverage AI; and operational challenges leveraging data across multiple clouds.

“It doesn’t matter if you show all the studies, if you show how it’s faster than the prior processing. Doctors don’t want the computer to take over.”

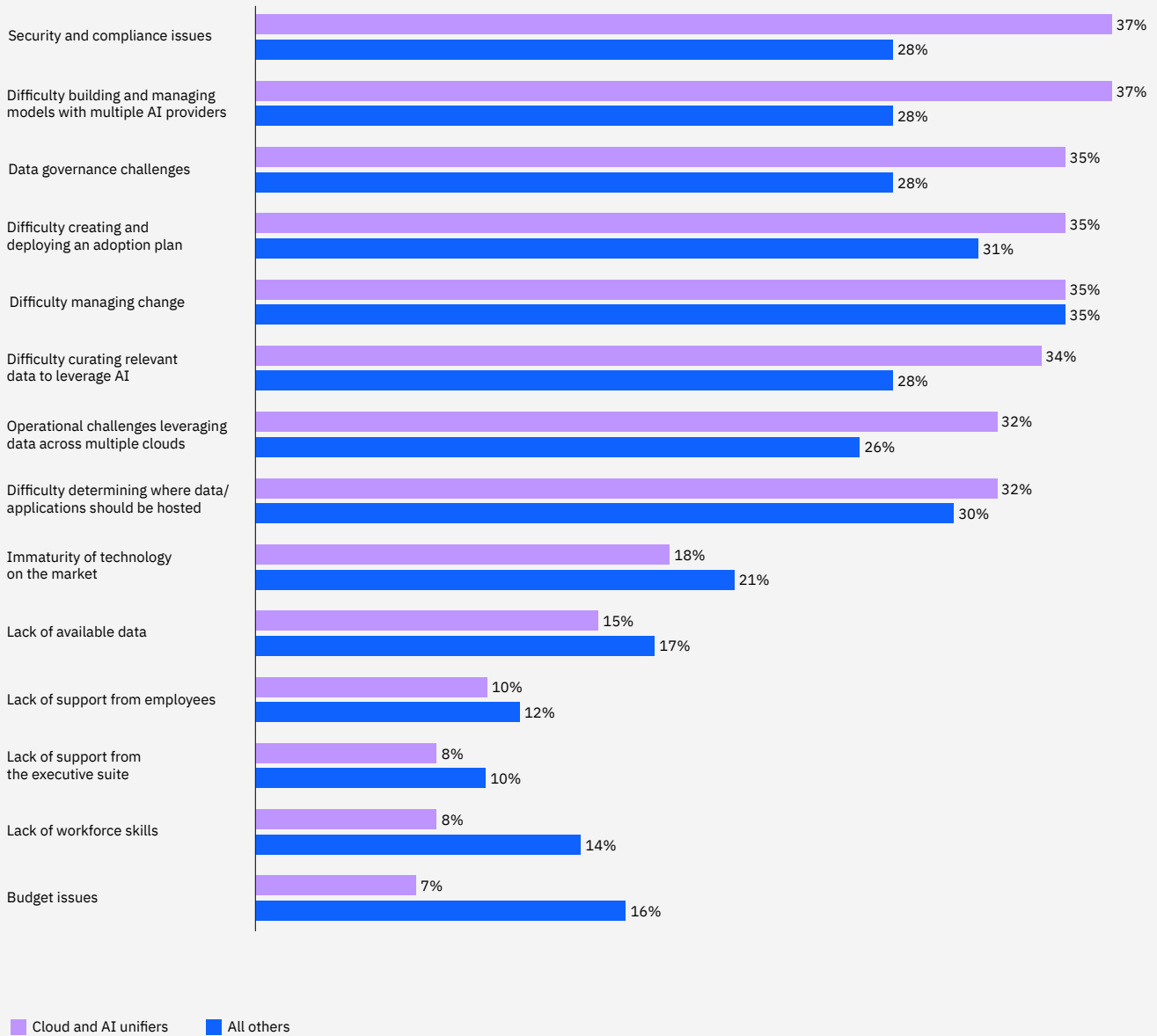
— **Chief Medical Information Officer**
Large US health system

Securing the right workforce skills will be critical to overcoming many of these challenges, and should be top of mind for IT executives. “Having the business insight and the subject matter expertise is absolutely key,” says Mr. Shahin of Flex, noting that if the company’s supply chain leaders and development team had not worked hand in hand during its efforts to increase analytics and predictive modeling, “we couldn’t do what we have done.”

Effective data management and governance can help overcome challenges in AI adoption too. When it comes to effectively incorporating AI into applications, Cloud and AI Unifiers stand out in defining and communicating ethical standards for AI use (44%); increasing data-sharing within the organization (41%) and with partners (33%); redesigning business processes for compatibility with AI (44%); and reskilling existing talent to focus on AI (39%)—all factors that may ultimately contribute to strong ROI.

Fig. 5: Diverging barriers to AI adoption

Q: Which of the following barriers has your organization faced in your AI adoption efforts?



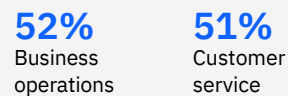
Maximizing returns from cloud, data and AI

AI and cloud are already supporting performance improvements across sectors. Asked to name the biggest advantages of using cloud to build, modernize, and host applications that incorporate AI, respondents are most likely to cite better customer experiences, better-quality products or services, and more flexibility.

IT executives are realizing the value of combined cloud and AI investments in terms of business and technical ROI. Business operations (52%) and customer service (51%) are the top areas experiencing positive ROI across the survey sample.

Cloud and AI Unifiers are more likely to experience these benefits in several important areas: they told us their combined cloud and AI projects have delivered ROI in terms of business operations, financial operations, human resources, and risk and compliance. This elite group is also more likely to say their organization's use of cloud has enabled or accelerated value realized in a range of areas, including customer experience and the development of AI applications. However, even these leaders still have work to do to realize ROI in some important areas.

Fig. 6: Where cloud and AI are seeing the most ROI



Conclusion

The acceleration of AI is set to transform organizations across industries and around the world. Those that are able to take a coordinated approach to implementation, in terms of integration with cloud and alignment with overall digital transformation goals, will likely see the most substantial returns and long-term competitiveness, even as they navigate uncertainty.

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.

[Get the report](#)



Learn more

Discover how combining trusted data and AI with the agility of hybrid cloud can drive these outcomes for your business.

[Reduce reputational and regulatory risk](#) →

[Unlock your data for AI](#) →

[Operationalize AI throughout your business](#) →

© Copyright IBM Corporation 2021

IBM Hybrid Cloud
IBM Corporation
New Orchard Road
Armonk, NY 10504

Produced in the United States of America
January 2021

IBM, the IBM logo, and ibm.com, are trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the Web at “Copyright and trademark information” at www.ibm.com/legal/copytrade.shtml.

This document is current as of the initial date of publication and may be changed by IBM at any time. Not all offerings are available in every country in which IBM operates.

THE INFORMATION IN THIS DOCUMENT IS PROVIDED “AS IS” WITHOUT ANY WARRANTY, EXPRESS OR IMPLIED, INCLUDING WITHOUT ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND ANY WARRANTY OR CONDITION OF NON-INFRINGEMENT. IBM products are warranted according to the terms and conditions of the agreements under which they are provided.

