

White paper

The 2023 AI and Machine Learning Research Report

This year's survey shows that IT leaders assign high priority to AI/ML as adoption continues to rise.



rackspace
technology



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Introduction and key findings

Survey results show increased AI/ML adoption

In December 2022, Rackspace Technology® polled 1,420 IT professionals throughout the world and across multiple industry verticals. Survey respondents worked in financial services, manufacturing, retail, hospitality, government and healthcare in the Americas, Europe, Asia and the Middle East.

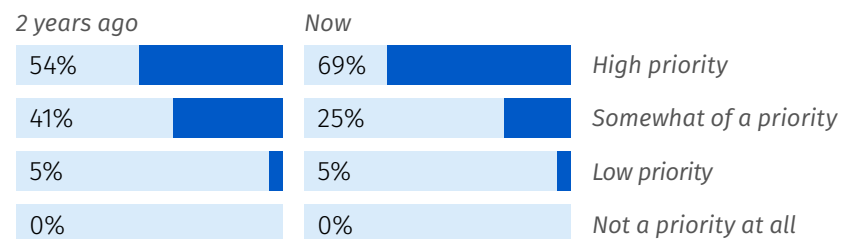
What the survey results show is that, when it comes to predicting tsunamis, curing Alzheimer's disease or helping aircraft land, there is one technology which today ranks only second to cyber security in importance for the businesses we surveyed, and that's AI/ML.

This single technology is having significant impacts on business around speed and efficiency of existing processes, reducing risks and operational costs, increasing employee morale and even helping to gauge new products and services. So, what's the biggest barrier to companies trying to harness this power? It appears that there are two primary challenges: talent gaps and legacy technology. And it seems like we've heard this before.

Since we conducted the same survey a year ago, many respondents have started using AI/ML technologies, demonstrating the perceived value of AI/ML and its ability to increase efficiencies in challenging economic conditions. It is also possible that these organizations are adopting these technologies because of the uncertain business climate.

Overall, this year's survey found that **69% of respondents rank AI/ML as a high priority within their organizations**. That's an increase of 15 percentage points when compared to 2022. Read on to see what else the data says.

How much of a priority, if at all, has AI/ML been for your industry 2 years ago and how much is it now?



AI/ML is gaining traction

Many have only just begun adoption. Remarkably, **nearly one-third of respondents have only just begun their AI/ML journeys in the past year**, emphasizing the rising value of these technologies. This is compared to 17% who had begun their AI/ML initiatives two years ago, and 11% three years ago.

AI/ML has left the science lab and is making real, tangible and beneficial impacts on businesses. **Nearly three-quarters (74%) of respondents are benefiting from AI/ML now**, with 41% saying they are seeing substantial benefits and 33% reporting modest benefits. An additional 26% of respondents said it was too early to tell if they are benefitting from AI/ML.

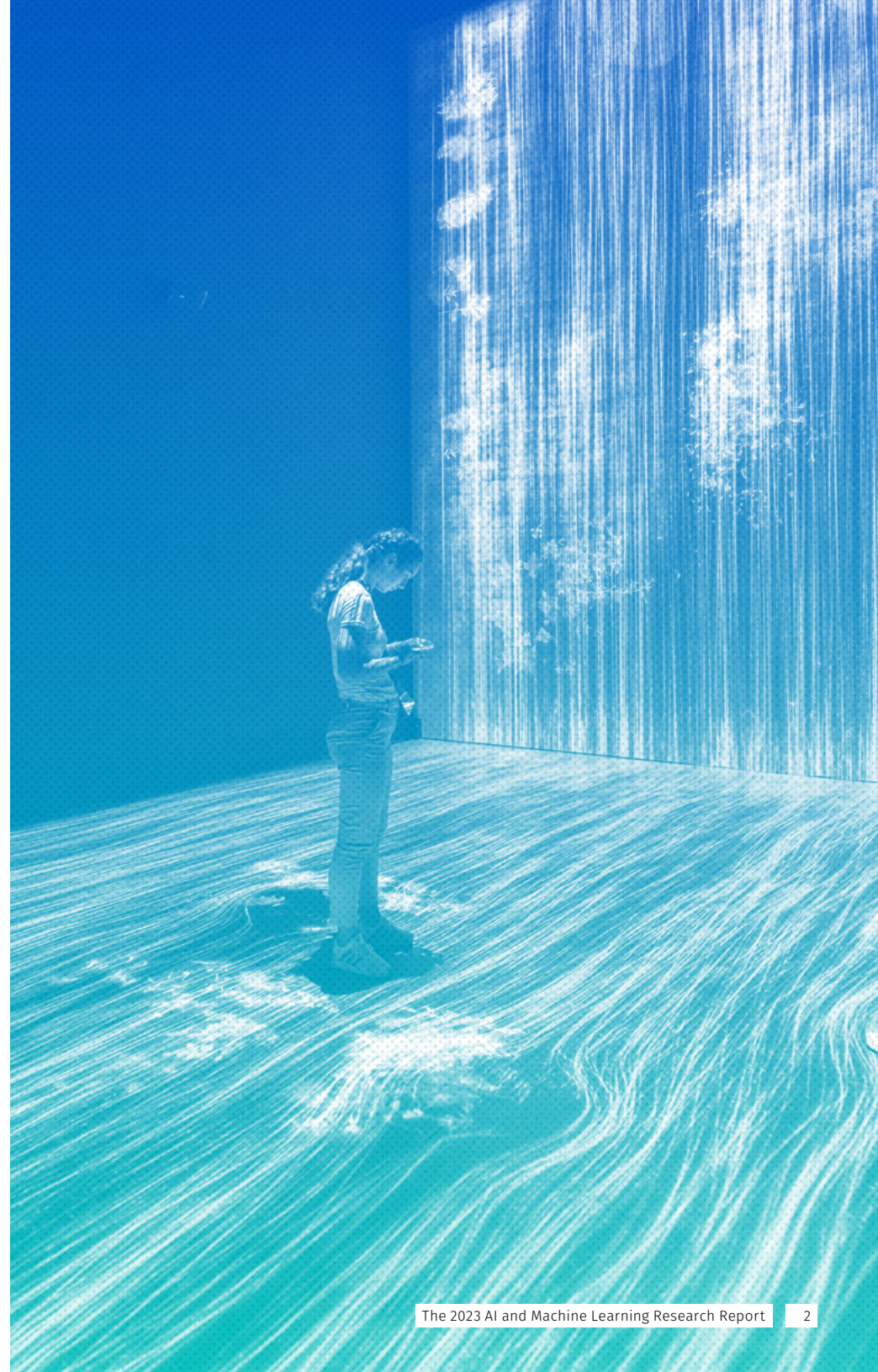
Companies are aware of AI/ML, and really starting to understand it. IT leaders are seeing increased value in AI/ML and are prioritizing it. They're using AI/ML to improve the speed and efficiency of processes, predict business performance, reduce risk, hire and recruit talent, boost their understanding of their businesses and customers, and increase innovation and productivity.

Hurdles exist, but trust is high

There is room to grow. Despite progress, many more organizations still don't understand the advantages and face internal resistance to initial adoption or further use of AI/ML. In addition, **62% of respondents said there had been internal pushback** against the adoption of AI/ML within their organizations.

A high level of trust. Despite security and data privacy concerns and some internal pushback, there is a high level of trust in AI/ML. Perhaps the most considerable surprise: **73% of respondents say they have confidence in the answers provided by AI/ML solutions.**

AI/ML is smart — but it isn't ready to implement itself. With the right talent and capabilities, organizations can optimize the fuller potential of their technologies. However, talent is the biggest issue in AI/ML. **It's difficult to find skilled people who can work with the technology and the data to optimize outcomes.** When asked, **"Which of the following challenges have you had on your AI/ML journey within your organization so far?"** the top response (67%) was, **"a shortage of skilled talent."**



How are businesses planning to utilize AI/ML in 2023?

AI/ML has become a critical element of business and IT strategies. In uncertain economic times, organizations focus more on improving the efficiency of existing processes and reducing risk. Fewer people in the organization translates to doing more with less.

Companies are using AI/ML to improve existing processes (67%), predict business performance/industry trends (60%) and reduce risk (53%). AI/ML is also helping users recruit and hire talent, increase understanding of the business and its customers, and accelerate innovation and productivity.

Sustainability is also on the forefront of these technologies. AI/ML is helping the organizations we polled meet sustainability targets by improving worker safety/security (60%), monitoring energy consumption (54%), and enabling predictive analytics (47%).

AI/ML is already helping improve processes and make valuable predictions in many industries and applications, [including aviation](#). Recently [an AI-powered autopilot safely handled takeoff, navigation and landing of a fighter jet](#). Heron Systems developed the AI and tested it in an F-16 at the Atlantic City Air National Guard Base. The AI was programmed to take over the responsibilities of a pilot, such as controlling the speed and altitude of the aircraft. The successful test shows the potential of AI in aviation, including a reduction of pilot workload and increased safety.

In another scenario [AI/ML is helping in the fight against Alzheimer's disease](#). [Researchers at the University of Cambridge used AI/ML to analyze MRI scans of dementia patients and compare them to healthy patients to identify potential markers of Alzheimer's disease](#). The study was able to detect Alzheimer's with 86% accuracy. It's hoped that by using algorithms to analyze data from medical scans, blood tests and cognitive tests, AI/ML can help monitor disease progression and develop more effective treatments.

Scientists are also using AI/ML to [help predict tsunamis](#). Researchers developed a deep learning algorithm to help detect tsunamis by analyzing acoustic signals from the ocean floor. This algorithm recognizes the acoustic pattern of a tsunami and can detect changes in oceanic currents that indicate a tsunami is on its way.

As AI/ML evolves, users will have access to easier-to-use and more powerful tools and insights that can help them keep pace in a competitive global marketplace.

Which is part of your current IT/business strategy?



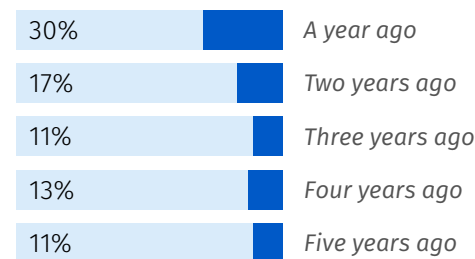
Which is most important to your IT strategy?

Respondents ranked AI/ML second only to cybersecurity as the most important technology for business strategy:



When did your organization start using AI/ML?

The pace of adoption is accelerating, with nearly half (47%) of all AI/ML users having begun within the last two years:

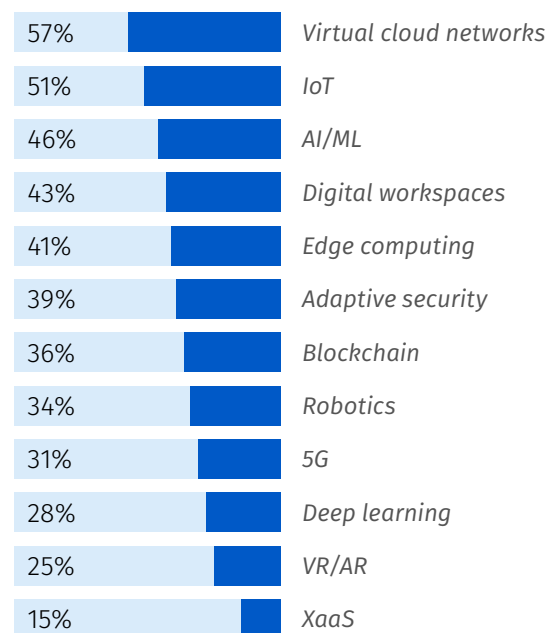


AI/ML's impact on business over the last two years

According to survey respondents, a little under half (46%) of companies have used AI/ML in the last two years, with 68% citing it as an important to their organization.

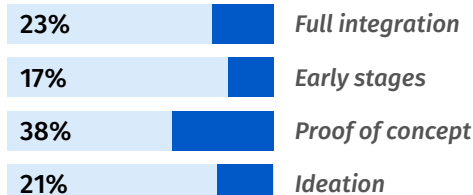
Other technologies such as IoT (73%), robotics (72%) and blockchain (71%) were cited as having more perceived importance over the last two years.

Which of the following technologies did your organization use within the last 2 years?



The four stages of AI/ML adoption

When it comes to assessing the overall maturity level of AI/ML adoption, a full 78% of respondents have moved past ideation into execution, and 40% are actively using AI/ML now.



What are your plans for using AI/ML?

Respondents are currently using AI/ML for things like improved speed and efficiency (67%), predictive analytics (60%) and reducing risk (53%):

Which of the below statements describe your current plans for using AI/ML?



How is AI/ML already helping businesses?

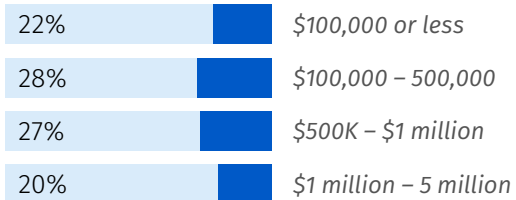
Below are the most common ways AI/ML is being used to help businesses:

1. Helping with data analytics
2. Driving innovation within the company
3. Managing product lifecycles
4. Optimizing resources
5. Creating a more personalized customer experience

Annual AI/ML investment trends

With adoption on the rise, our research reflects that companies are increasingly aware of AI/ML, many know they need it and want it, and others are making the effort now to utilize it. AI/ML technologies are no longer exclusive to only the wealthiest global multinational corporations.

What is the total level of investment your organization is making per year on AI/ML initiatives?



Globally, the average annual investment is now more than \$1 million. Respondents reported an annual investment in AI/ML initiatives of \$1.12 million.

Here is a look at annual investments by region:

USA	APJ	EMEA	LATAM
\$1.31M	\$1.22M	\$1.08M	\$0.91M



Barriers to adoption

Despite increasing adoption and plans to use AI/ML, several barriers to adoption still exist.

IT talent gaps

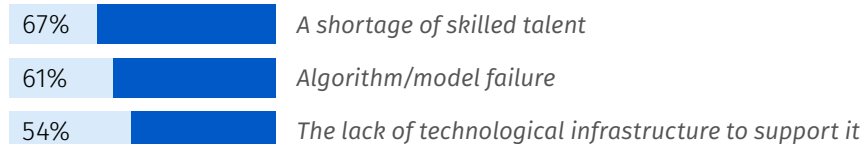
The main barrier to implementation of AI/ML solutions is the need for more AI/ML capability and the talent required to manage data effectively.

To address these issues, 82% of respondents said they have made efforts to recruit employees with AI/ML skills in the past 12 months, while 86% have grown their AI/ML workforce in the past 12 months.

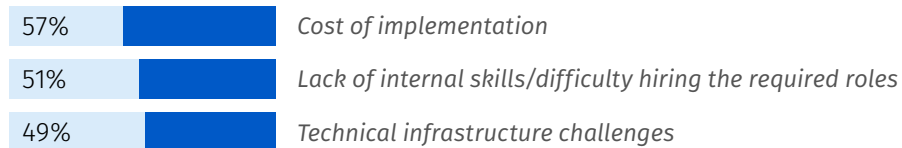
In addition, 62% of respondents said that AI/ML implementation has led to reduced headcount within their organizations.

Still, many organizations are having difficulty comprehending the complete advantages of AI/ML and are facing internal resistance to embracing it.

Which of the following challenges have you had on your AI/ML journey within your organization so far?

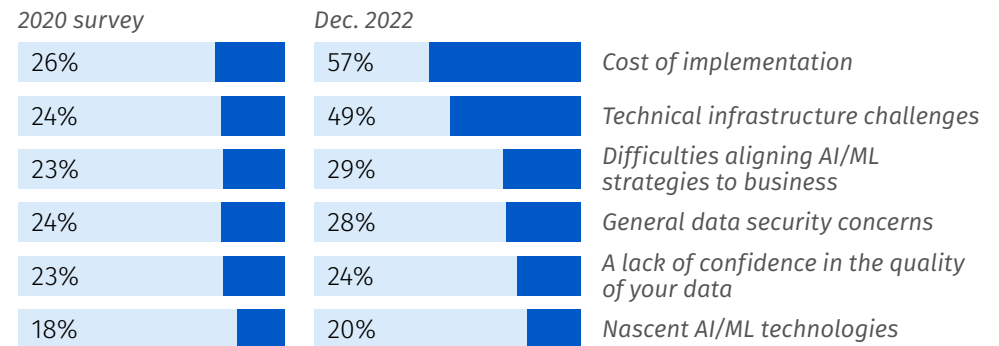


What are the barriers to adoption in your organization?



A comparison of adoption barriers

We took a look back to compare the new findings with our 2020 AI/ML survey. The findings suggest that cost concerns and infrastructure challenges have risen dramatically, while data security concerns and confidence in data quality remained relatively the same.



Pitfalls, potential benefits and barriers to leveraging AI/ML

Common use cases

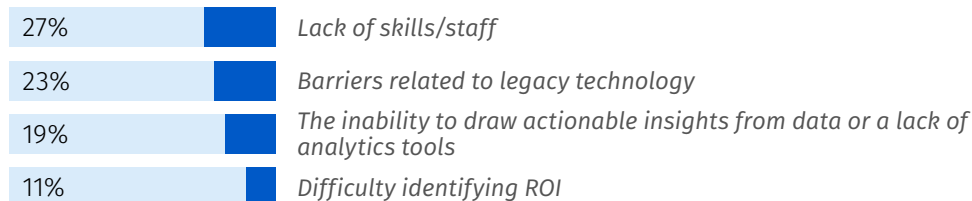
Which AI/ML use cases are gaining the most traction within your organization?

Our research reveals that AI/ML is helping to make tasks less labor-intensive. This is particularly important in the current economic climate and suggests that the primary use case of all data and AI/ML projects is about driving “people efficiency.”

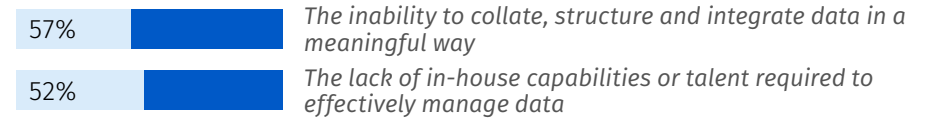


Which of the following is the biggest pitfall in leveraging AI/ML for your organization?

Companies are struggling to recruit and retain skilled workers amid a continuing global IT talent shortage. The lack of data engineering capabilities impedes their ability to use and manipulate data effectively:



What are the largest barriers to your organization's ability to draw actionable insights from data and act on them?

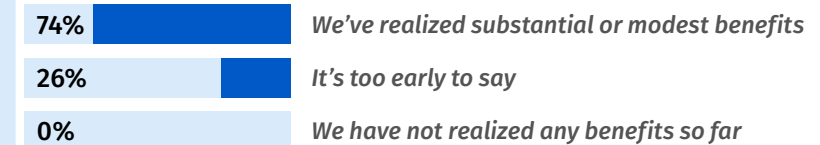


During the past 24 months, companies have created and stored a substantial amount of data in the cloud. Many owners need more in-house talent or tools to enable strong data management. The result is often sub-optimal data quality and governance. The inability to solve data quality issues is one of the largest roadblocks to an organization's ability to successfully extract actionable insights.

Realizing potential benefits

Nearly three-quarters (74%) of respondents said they have realized either substantial or modest benefits of AI/ML.

To what degree has your organization realized the full potential benefits of AI/ML?



Note: With zero respondents indicating they “have not realized any benefits so far,” it appears that every respondent in our sample believes they are seeing some form of value from AI/ML today.



AI/ML has instilled high levels of trust

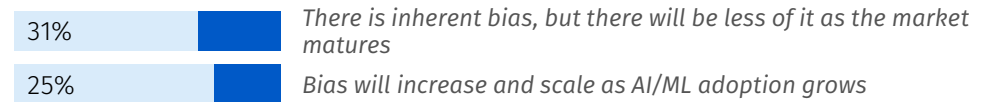
The IT leaders we polled indicated a significantly high level of confidence in AI/ML. Despite any potential security and privacy concerns, 73% of IT decision-makers expressed confidence in the answers provided by AI/ML, and 72% said there are sufficient checks and balances in place to avoid negative consequences. Further, 80% of respondents said they believe that AI/ML findings don't require further human interpretation.

“I would always trust the answers given by AI/ML solutions”

A surprising 73% of respondents said they always trust the analysis provided by AI/ML technologies.

- 72% say there are sufficient checks and balances in place to avoid negative consequences from the use of AI/ML
- 77% say AI/ML decisions are made by the right people
- 71% say there is sufficient governance in place to safeguard against misuse of AI/ML

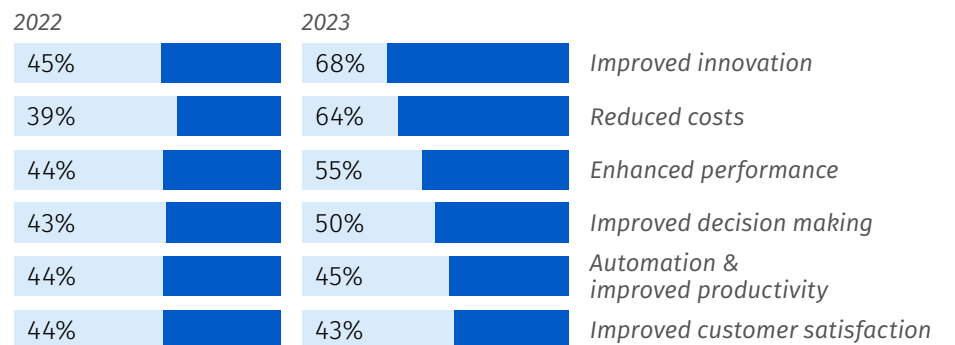
Respondent views on AI/ML bias



IT leaders see greater potential in AI/ML

As the saying goes, perception can become reality. Comparing our 2023 survey findings to those from 2022, we see **strong gains in the perception of the potential benefits of AI/ML:**

Which do you see as potential benefits of AI/ML initiatives?



How are businesses actually benefiting from AI/ML?

More organizations are leveraging AI/ML to improve the speed and efficiency of existing processes, with 67% organizations saying it is an area of focus, versus just 52% in 2022.

Other popular areas of focus include predicting business performance and industry trends (60%), and reducing risk (53%).

In addition, AI/ML is being used by organizations in an increasingly wide variety of contexts, including hiring and recruiting new talent, increasing understanding of the business and its customers, and increasing innovation and productivity.

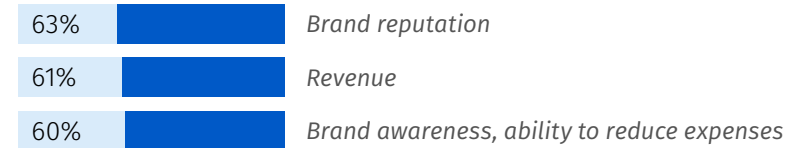
Actual benefits seen from implementing AI/ML initiatives:



The impact of investment and KPIs

Some 40% of organizations said that measuring and proving the business value of their AI/ML solution is a high-ranking, common challenge.

What impact has the implementation of AI/ML had on your organization?



Measuring the success of AI/ML initiatives

When evaluating the success or failure of AI/ML projects, 66% of respondents consider revenue growth the leading KPI. That's an increase of 6% since our 2022 research, in which 60% of respondents chose revenue growth as the top-cited KPI, followed closely by cost savings (55%) and profit margins (54%).

Which KPIs do you use to measure the success of AI/ML initiatives?



We believe that monetary KPIs typically rise to the top as success indicators because metrics such as “process enhancement/automation” and “time to insight” are more difficult to calculate.

The strongest drivers of AI/ML adoption?

We polled respondents to identify the main factors driving their AI/ML adoption.

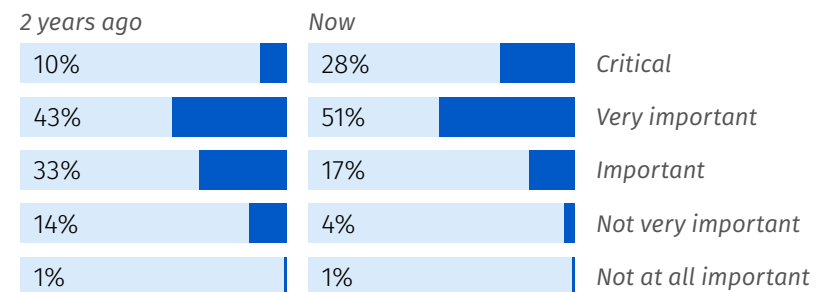


The shifting vision and role of AI/ML

There's a steady increase among respondents in the significance of the role AI/ML will play within their organizations. Today, 28% of respondents say it will play a critical role, as opposed to 10% in 2020. More than half (51%) described the role of AI/ML as "very important," compared to 43% in 2020.

All told, 79% of respondents today, as opposed to just 53% in 2020, believe AI/ML plays a role of high significance within their organizations.

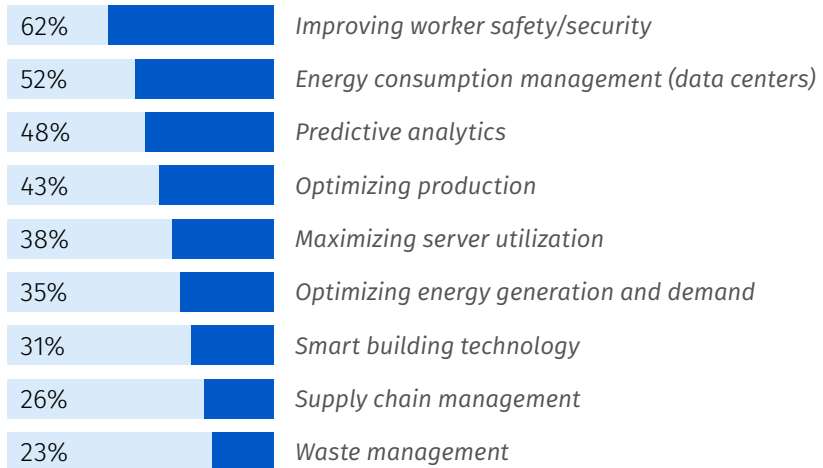
How has your organization's vision for incorporating AI/ML into its core activities changed over the past 2 years?



The use of AI/ML in meeting sustainability targets

In addition to internal improvements to an organizations' productivity, AI/ML is being used to meet sustainability targets. In fact, 62% of respondents say they've used AI/ML to boost safety and security measures within the workplace, while 52% are using it to manage energy consumption in the data center, and 47% use it for predictive analytics.

How is AI/ML being used to meet sustainability targets for your organization?



Implications for your AI/ML journey

Businesses that are beginning their use of AI/ML technologies, or that are struggling to move deeper into their AI/ML initiatives, should focus on three key areas:

- Establishing an overall strategy and creating buy-in across leadership
- Strengthening data quality and accuracy
- Training and upskilling talent

To create an effective AI/ML strategy, stakeholders should:

- Establish a business case and expectations for deliverables, milestones and timelines
- Create a data governance process that accounts for the roles, responsibilities and processes for proper data management
- Determine standards and metrics that can be used ensure data is accurate, complete, consistent and reliable
- Monitor and audit data regularly to identify and address data quality problems such as incorrect values, duplicates or outliers
- Address data quality and accuracy issues by cleaning up data and data processes, including setting definitions and eliminating data silos

By taking a proactive approach to data quality and accuracy, a company can improve decision making and build customer trust, which ultimately fuels its success.

Focus on talent development

Respondents consistently listed lack of in-house resources who can understand and refine the use of AI/ML technologies. Evaluate your current training processes and your in-house capabilities to determine whether you should recruit externally or use the resources that you already have. To cultivate stronger AI/ML capabilities in-house, you should consider increasing your company's attendance at conferences or events, and offer online training to your teams.

How Rackspace Technology can drive your AI/ML initiatives

Rackspace Technology offers a portfolio of services to support your AI/ML journey — from data hygiene and business process transformation to operationalizing your data models. Our team of data scientists and cloud experts can help you deploy AI/ML for leading use cases such as:

- **Intelligent document processing:** Implement a scalable, cloud native solution for turning documents and unstructured content into digitized, searchable content.
- **Forecasting and prediction:** Use historical data to build models that predict future outcomes.
- **Machine vision:** Rely on images or video to collect data including tracking objects, detecting changes over time and facial recognition.
- **Natural language processing:** Build conversational interfaces that involve speech or text including interpretation, translation, sentiment and keyword analysis.
- **Anomaly and pattern detection:** Identify clusters of commonality or normal/ anomalous distinctions such as segmentation and categorization.
- **MLOps:** Combine data preprocessing, model training, deployment and model monitoring across multiple environments with strong governance and security controls, to provide a foundation for successful model lifecycle management.

Take the next step in your AI/ML journey today.

Learn more at: www.rackspace.com/data/ai-machine-learning

About Rackspace Technology

Rackspace Technology is the multicloud solutions expert. We combine our expertise with the world's leading technologies — across applications, data and security — to deliver end-to-end solutions. We have a proven record of advising customers based on their business challenges, designing solutions that scale, building and managing those solutions, and optimizing returns into the future.

As a global, multicloud technology services pioneer, we deliver innovative capabilities of the cloud to help customers build new revenue streams, increase efficiency and create incredible experiences. Named a best place to work, year after year according to Fortune, Forbes and Glassdoor, we attract and develop world-class talent to deliver the best expertise to our customers. Everything we do is wrapped in our obsession with our customers' success — our Fanatical Experience® — so they can work faster, smarter and stay ahead of what's next.

Learn more at www.rackspace.com or call 1-800-961-2888.

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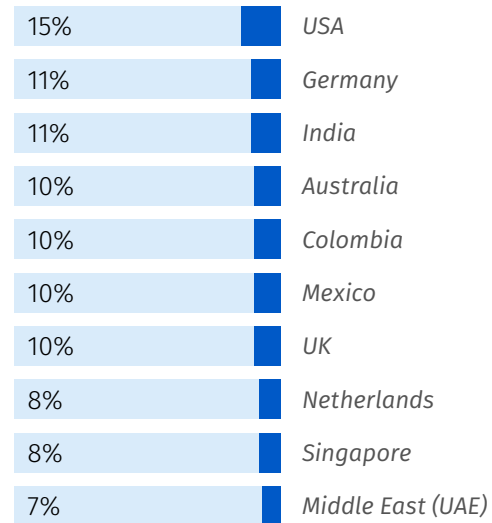
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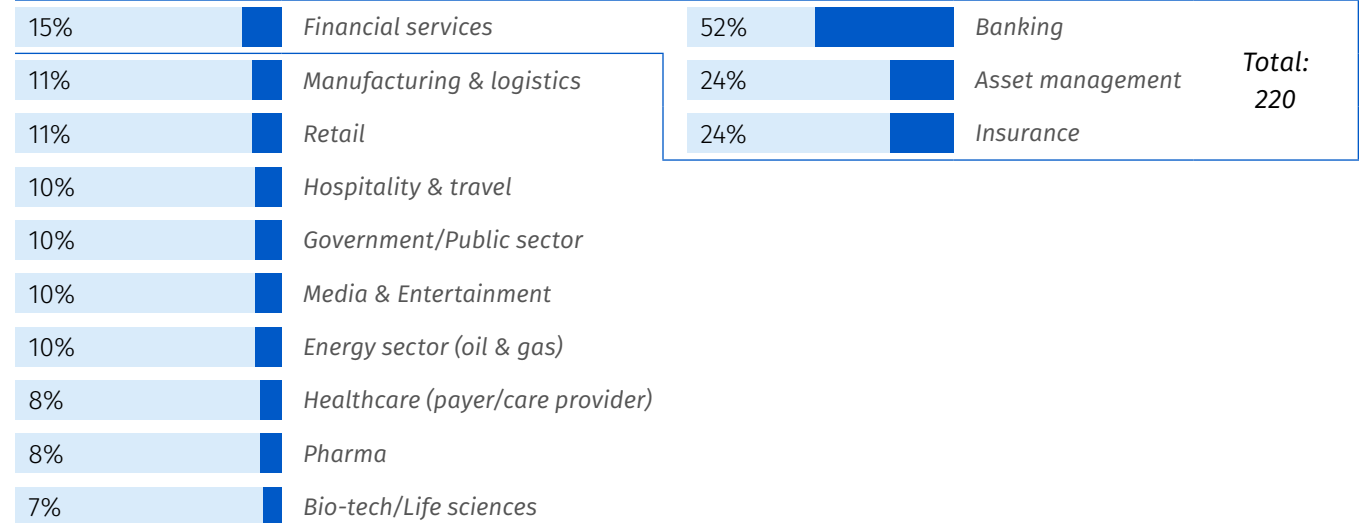
Appendix: methodology and audience profile

Our partner Coleman Parkes Research conducted the global survey of 1,420 IT decision-makers at companies and organizations in eight sectors during February 2023. Total respondents: (1,420).

Country

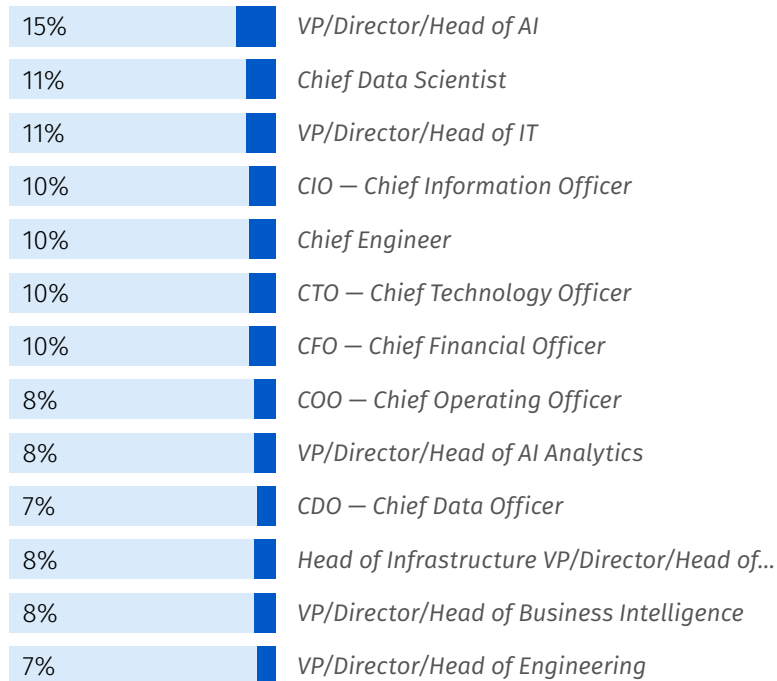


Sector



Appendix: Methodology and audience profile (continued)

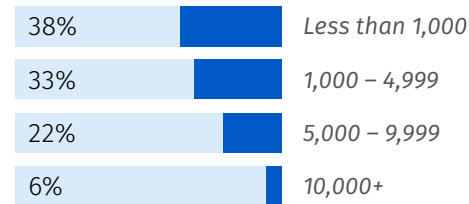
Job title



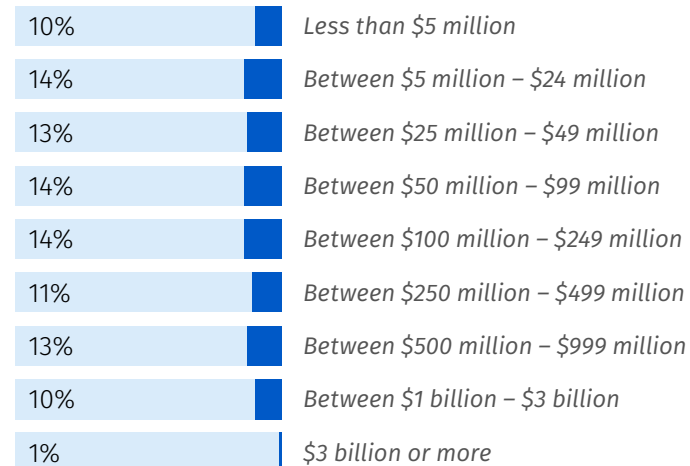
Responsibility



Number of employees



Annual revenue FY 2021



Proportion of revenue on IT

