CEO decision-making in the age of AI

Act with intention

IBM

CEO decision-making in the age of AI

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About the study

The IBM Institute for Business Value, in cooperation with Oxford Economics, interviewed 3,000 CEOs from 30+ countries and 24 industries as part of the 28th edition of the IBM C-suite Study series. These conversations, completed from February through April 2023, focused on executives' perspectives on leadership and business; their changing roles and responsibilities; and CEO decision-making today, including key challenges and opportunities, their use of technology, data, and metrics, and their visions for the future. Insights were also drawn from numerous client conversations including more than a dozen deep-dive interviews with CEOs conducted explicitly for this study from March through May 2023.

30+
Countries

3,000+
CEOs

24
Industries

Key takeaways

CEOs are weighing unprecedented urgency and risk.

With a host of new decision-making inputs—from a growing amount of data to a widening pool of increasingly involved stakeholders—it's no wonder 44% of CEOs regret a public stand they've taken over the last three years.

Generative AI changes—well, everything.

Three out of four (75%) CEOs believe the organization with the most advanced generative AI wins. Already, 43% of CEOs are using generative AI to inform strategic decisions.

CEOs feel their organizations are ready for generative AI. Other executives are not as confident.

69% of CEOs see broad benefits of generative AI across the organization but only 29% of their executive teams feel they have the in-house expertise to adopt generative AI.

2 out of 3 CEOs are acting without a clear view of how to help their workforce with the disruption and inevitable transitions AI will bring.

Fewer than one in three CEOs say they have conducted an assessment on the potential impact of generative AI on their workforce, yet are using it already.
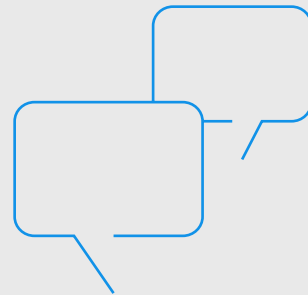
A lack of clarity is impeding decision-making and investments.

More than half (56%) of CEOs say they are delaying at least one major investment due to a lack of consistent standards. CEOs face a lack of consistent standards, particularly in emerging areas such as sustainability and data and privacy.

"Generative AI models surprise, impress, and scare us, all at the same time."

Gonzalo Gortázar
CEO, CaixaBank

Any decision that makes its way to the CEO is one that involves high degrees of uncertainty, nuance, or outsize impact. If it was simple, someone else— or *something* else—would do it. As the world grows more complex, so does the nature of the decisions landing on a CEO's desk.

It used to be easier: CEOs relied on primarily financial results and operational reports, combined with intuition and experience, to make decisions about the next best move for their organization. That's not enough anymore.

Ask CEOs about their most challenging issues now and top-of-list items move far beyond financials into complex issues that require a host of inputs—AI; sustainability; cybersecurity; diversity, equity, and inclusion; stakeholder management. CEOs tell us it's almost crushing.

It is an epic challenge

Decision-making has become an epic challenge in an environment where nuance and compromise are seen as weaknesses. Today's stakeholders show no tolerance for missteps. Seemingly everyone from shareholders, employees, and the media hurl "Why that?" assaults no matter what decision a leader makes. Yet, 77% of CEOs say they feel compelled to take a stand on potentially controversial issues; 61% say the same even when they don't see clear financial gain for their organization. And it's no wonder 44% of CEOs say they regret a public stand they've taken in the last three years.[1] Leading can feel like a no-win situation.

Intentionality matters more than ever. In this environment, advancing a strategic roadmap is also more essential than ever. It's not action that matters most, but output. And the right outputs depend on the right decisions.
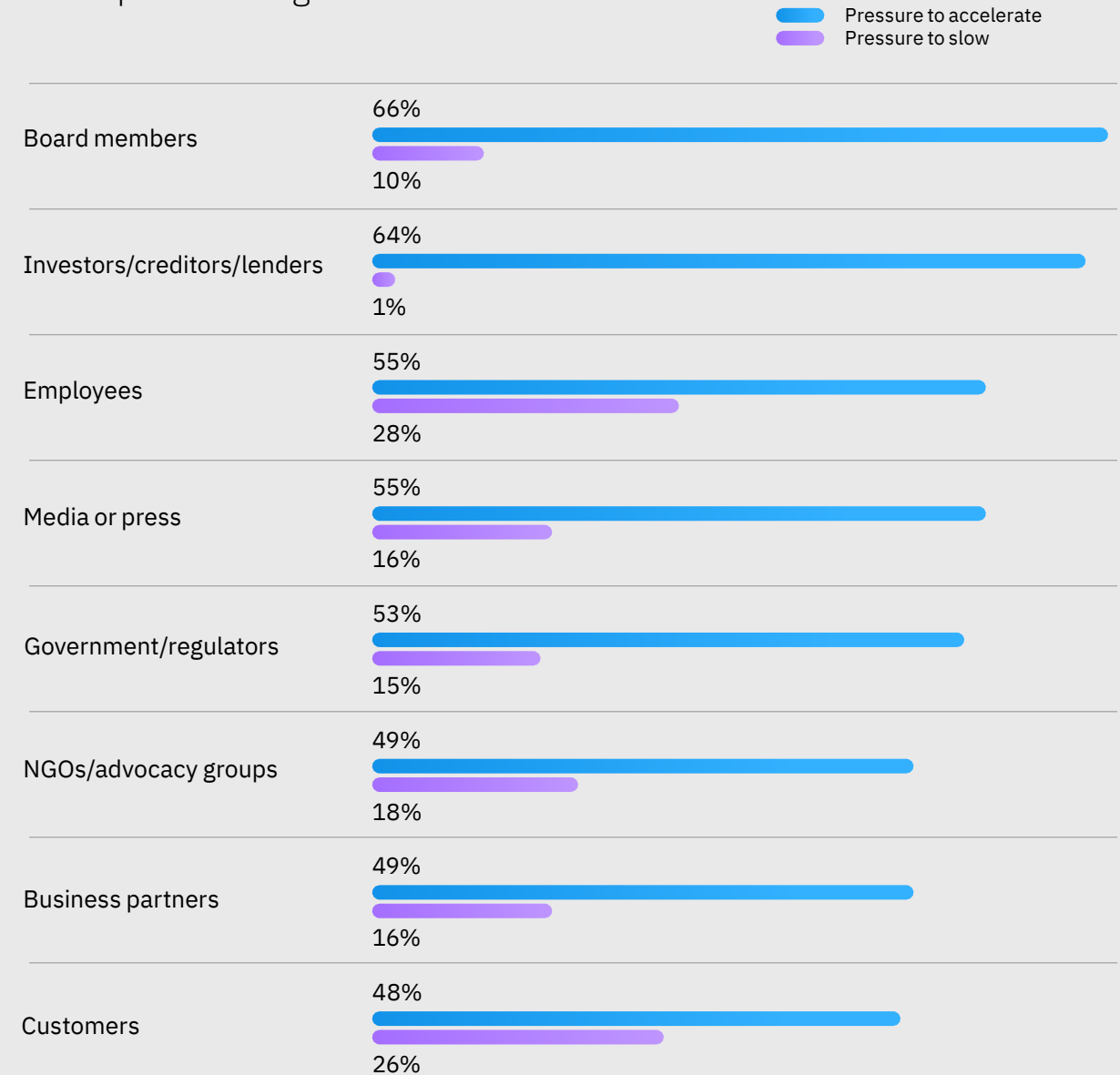
As CEOs respond to the pressure to accelerate AI adoption, their teams are more hesitant.

Enter generative AI

And now, generative AI has burst into the scene—a technological tool that promises, potentially, to deliver answers to even the most vexing questions, instantaneously. With advanced analytics and deep data, CEOs can now turn to artificial intelligence to gather insights and direction. It may be tempting for enterprise leaders to see generative AI as their magic wand—enter a few prompts and seconds later have a compelling rationale that supports any decision. Except of course it doesn't work that way. But that's not stopping stakeholders from pressuring executives to use it. Investors are still the most heavily biased toward acceleration, but a slightly higher percentage of board members are pressuring CEOs to accelerate adoption (see Figure 1).

As CEOs respond to the pressure to accelerate AI adoption, their teams are more hesitant. CEOs firmly believe in the benefits of generative AI across their organizations but other executives cite a lack of in-house skills. CEOs (74%) agree or strongly agree that their team has the knowledge and skills to incorporate new technologies such as generative AI. Just 29% of other executives, though, agree that their organization already has the expertise in-house to adopt generative AI and only 30% agree that their organization is ready to adopt generative AI responsibly.

Figure 1

Pressure to accelerate AI adoption runs high

Legend: Pressure to accelerate / Pressure to slow

Stakeholder group	Pressure to accelerate	Pressure to slow
Board members	66%	10%
Investors/creditors/lenders	64%	1%
Employees	55%	28%
Media or press	55%	16%
Government/regulators	53%	15%
NGOs/advocacy groups	49%	18%
Business partners	49%	16%
Customers	48%	26%

Q: To what extent are the following stakeholder groups applying pressure to slow or accelerate adoption of generative AI?
Note: Respondents were not asked to indicate the direction of pressure if they identified a stakeholder group as applying little to no pressure around generative AI.

3,000 CEOs from around the globe share their thoughts and experience

To address this pivotal inflection point, the IBM Institute for Business Value (IBM IBV) has undertaken its most complex and far-reaching CEO study. We have surveyed more than 3,000 CEOs and public sector leaders globally about their key decisions and processes, what matters most now, and what they see ahead in the next three years. We determined what separates CEOs who are making decisions most effectively from those who are becoming increasingly bogged down by uncertainty.

We also explored, with a select group of CEOs, how generative AI is impacting decision-making not only in the C-suite but throughout their organizations. We talked in depth with CEOs across multiple industries about what it's really like to lead in this environment, as the situation unfolds.

What follows is a roadmap for leaders, based on conditions right now, on how their decision-making must evolve and adapt.

Our analysis explores a few key themes:

How CEOs make decisions

Applying decisions across the organization
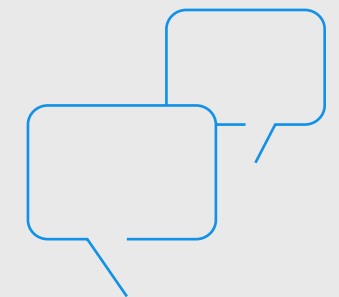
What decisions matter most?
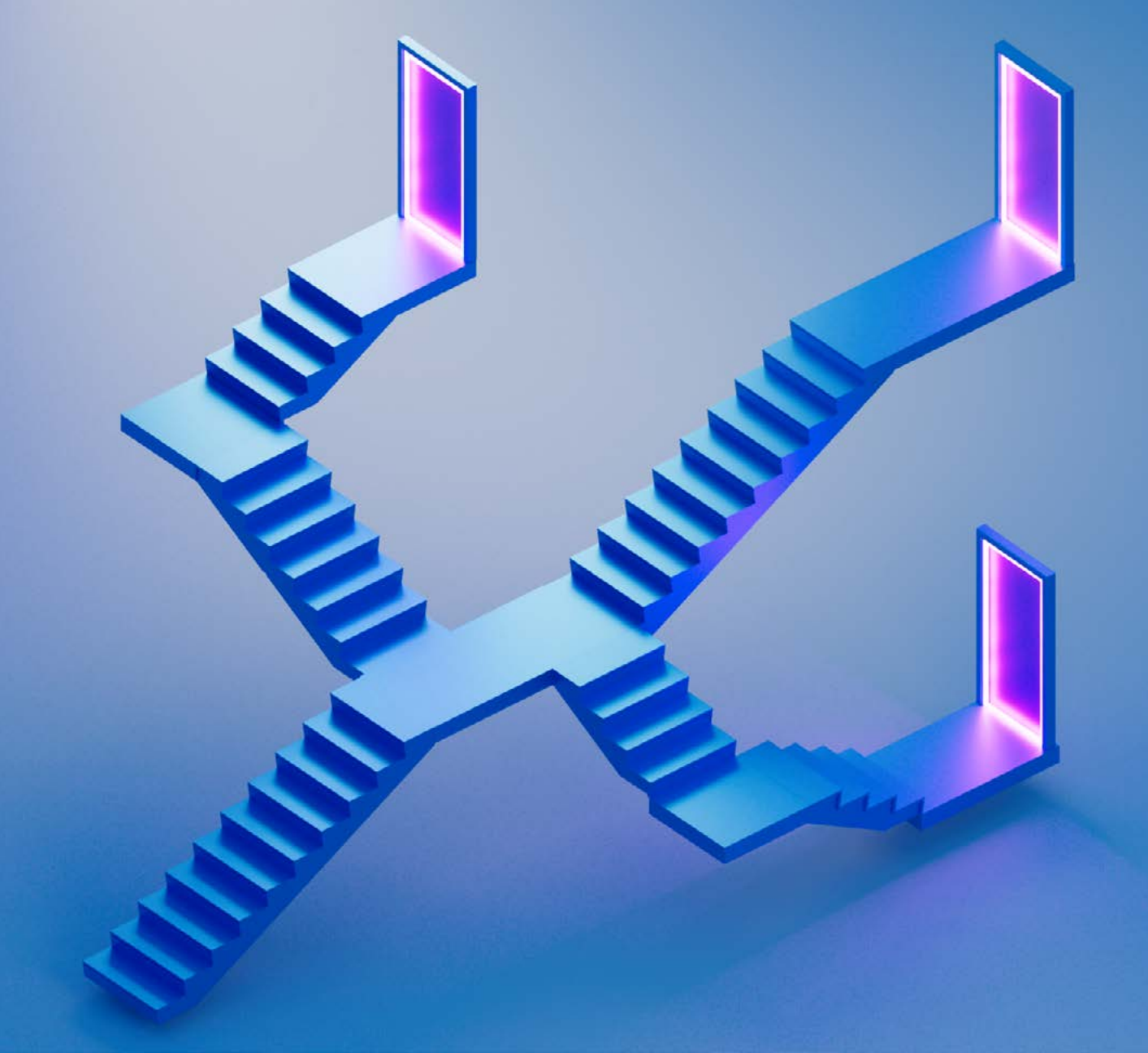
Better decisions for a better world

Across this analysis we delve into executive-level strategies, as well as organization-wide adjustments impacted by AI and other data-fueled tools.

None of us has a crystal ball, but it's not simply knowing the future that makes you successful. It's what you do with what you know.[2] High-performing CEOs are navigating not only what is possible to know, but how to laser-focus on separating the signal from the noise.

"The biggest feature of turbulent times is the increase in uncertainty. A large part of growth comes from dealing with that uncertainty."
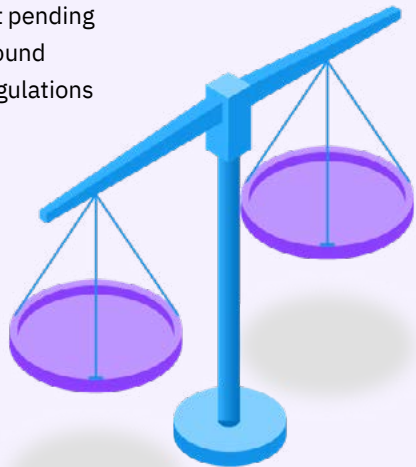
Company Chairman, Asia Pacific

The decision-making burden on CEOs has always been heavy. Broader digital accessibility and new tech tools have unleashed a wave of innovation, forcing leaders to make decisions and act more quickly than ever to stay ahead of the tide.

An explosion of real-time data supplements traditional financial and operational metrics and provides an ever-broadening array of information. While often useful and occasionally instructive, the swell of continuous inputs from so many sources can become overwhelming. Yet, top CEOs consistently use a range of decision-making inputs and are more than 13x as likely as their peers to rank their enterprise dashboard as excellent at providing insight.

Part One

How CEOs make decisions

61%

of CEOs lack consistent standards in one or more areas of strategic focus

while

56%

are currently delaying a major investment pending greater clarity around standards and regulations

External conditions have made CEO challenges even more complex. From the COVID-19 pandemic to climate change, increasing cyberattacks to shifting workforce expectations, CEOs face decision-making that goes well beyond traditional shareholder value models and their own personal experience. Unpredictable, asymmetrical situations are arising more frequently, involving more factors and more stakeholders. In Greek mythology, Hercules slayed Hydra, the many-headed serpent, but each head he removed was replaced by two others.[3] In similar fashion, CEO decisions center on increasingly complex and fast-changing topics that frequently involve an ethical or moral component—and deciding on one topic can cause other issues to rise to the fore.

Adding to these challenges, CEOs face a lack of standards around decision-making, particularly in emerging areas such as sustainability and data and privacy. CEOs tell us common standards could help smooth the way, speeding decision-making throughout the organization.

It's no surprise that CEOs are drawn to inputs that promise to simplify or accelerate decision-making, such as data-driven, AI-backed tools—and yet here, too, the complications intensify. Generative AI, in particular, when asked a question, often expresses itself with certainty, but sometimes "hallucinates" its answer. AI trained on generic datasets—AI that lacks transparency in its logic—could function as an opaque engine of mistakes and misinformation, hampering rather than helping CEO decision-making. Because generative AI amplifies both the good and the less-than-ideal that exists in any organization, it needs to be applied in line with a cohesive strategy rather than as a fix for a multitude of ad hoc situations.

The majority of CEOs believe the most advanced generative AI wins

In many ways, one of the most critical decisions CEOs face right now is whether and how to use AI —in their own decision-making and throughout their enterprises. With the public explosion of generative AI tools, the phrase "AI" has become dominant in press accounts as well as quarterly earnings calls, in a way no CEO can afford to ignore. Some companies have seen billions in valuations evaporate after mentioning the threat of AI; others have pointed to AI as the holy grail for their future.[4]

The rush to action is understandable. Three-quarters of CEOs (75%) believe that the enterprise with the most advanced generative AI will win and they say competitive advantage depends upon it. As they race toward AI superiority, 43% of CEOs say their enterprises are already using generative AI to inform strategic decisions, 36% for operational decisions, and 50% are integrating it into their products and services.

Yet CEOs must also weigh this "act-now" pressure against potential dangers such as bias, ethics, and safety. More than half (57%) of CEOs are concerned about the security of data and 48% worry about bias or data accuracy. CEOs wrestle with charging boldly into a still emerging space or acting with greater caution and risk being left behind.

There is nothing simple about this conundrum: how to address AI in all its manifestations—from generative AI to intelligent automation—even as the tradeoff of benefits versus drawbacks is still unfolding. As President and CEO of American Honda Motor Co., Inc., Noriya Kaihara, puts it, "So, the question we ask is: can we use the technology to help people get things done? Can we use the technology to help people achieve their potential? That's what we are trying to do. Technology should help make our business simpler and easier. But, we are always thinking about the consequences of using each technology."
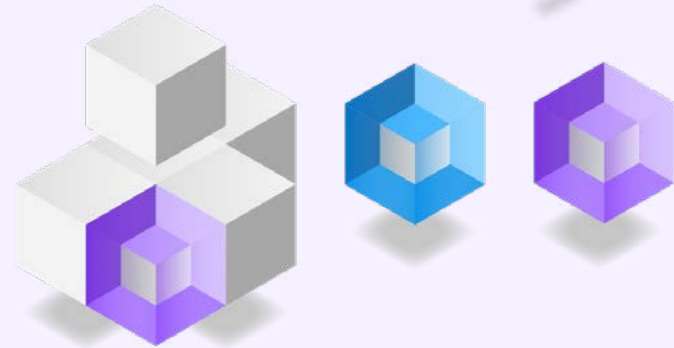
75%

of CEOs believe that competitive advantage will depend on who has the most advanced generative AI
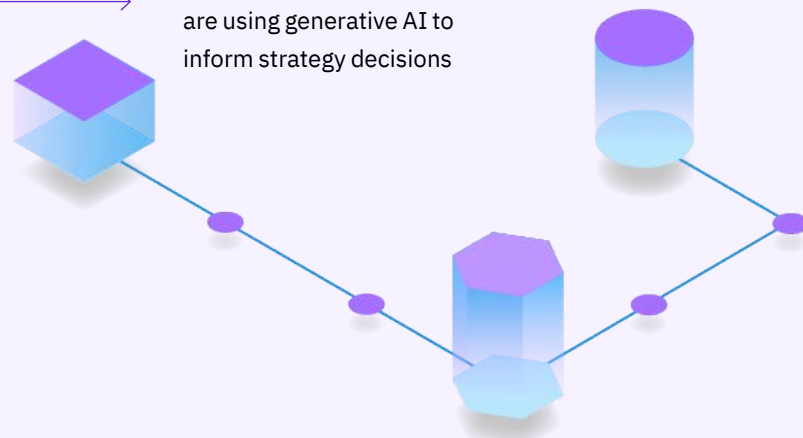
Already,

50%

of CEOs are integrating generative AI into products and services

And **43%** are using generative AI to inform strategy decisions

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Figure 2

How CEOs decide what inputs matter

CEOs draw from a variety of inputs when making strategic decisions. An increase in the amount of data they must consider from newer areas like ESG, added to a growing number of external inputs, means there is just more to consider than ever before. In our global survey, most of the CEOs report that they still rely prominently on operational data (76%) and financial data (75%). Yet more than three out of four CEOs stress that the most important decisions cannot be made on data alone. In fact, 63% of the CEOs turn to input from their people, and over half (54%) include personal experience and intuition in the mix (see Figure 2).
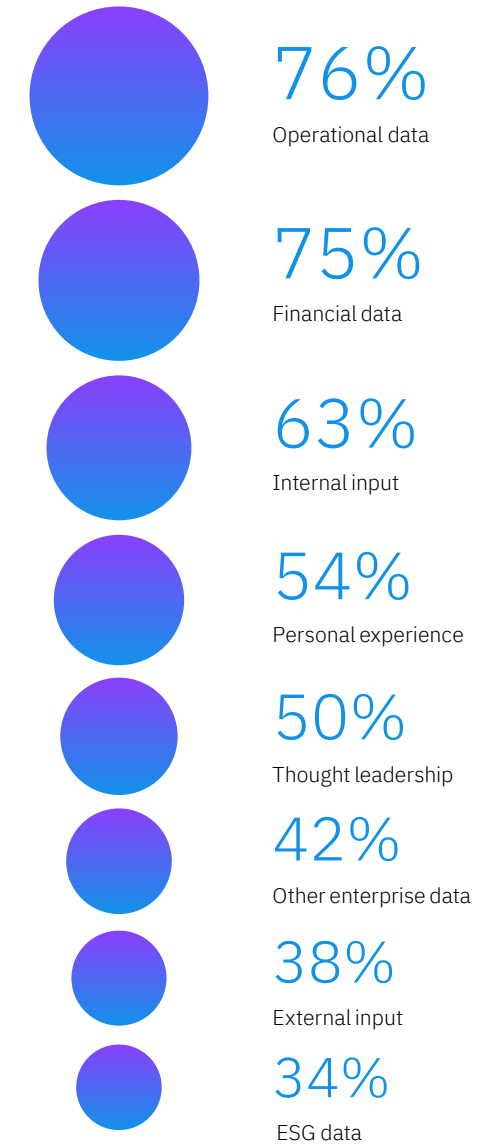
"So, the question is: can we use the technology to help people get things done?"

Noriya Kaihara
President & CEO, American Honda Motor Co., Inc.

What inputs do CEOs use to make decisions?

76%
Operational data

75%
Financial data

63%
Internal input

54%
Personal experience

50%
Thought leadership

42%
Other enterprise data

38%
External input

34%
ESG data

Q: How often do you rely on each of the following sources of information when you make strategic decisions? (% reflects responses for "Most of the time" or "Always").

Through our research and interviews, we sought to understand what sets apart the CEOs who are most successfully navigating today's complex decisions.

When we looked at our high-performing group through a financial lens, they deliver far better results than their peers, with 2023-2025 projected annual revenue growth 21% higher than the average respondent and annual operating margins 24% higher.

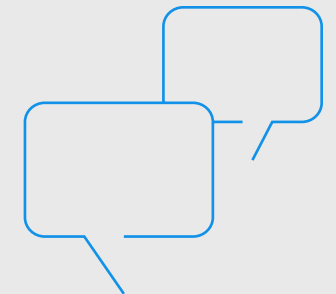But two other key elements also rose to the top.

First, these CEOs have high confidence in their digital infrastructure and data, and they believe those capabilities enable better investments and higher efficiency in delivering value. But they also express a strong conviction that the most important decisions a CEO makes can't be made on data alone.

This group of decision-makers is more than twice as likely as their peers (65% versus 28%) to strongly agree that metrics are driving organizational behaviors, and they say metrics give them a full understanding of organizational performance and health. They have effective lines of communication with key stakeholders and are confident they are well-positioned going forward.

"Decision-making based on intuition, common sense, and knowledge is very good and should never be lost. But the more analytic support we have, the better."

Gonzalo Gortázar
CEO, CaixaBank

"Sometimes you must realize that a situation cannot wait for more relevant data and take action with what you have at hand. With the data that exists, you have to decide at that moment because you can't wait six months to have the right data set, or the right tools, or the right process."

Fabián Hernández
CEO, Movistar Colombia

What's perhaps most telling is how CEOs make strategic decisions amidst uncertainty.

It's not that data doesn't matter. These CEOs emphasize that clear metrics drive outcomes from investor confidence to regulatory compliance to employee recruitment. But they are not looking solely at the numbers. In fact, they are far more likely than CEOs overall to use a broad range of planning approaches, including forecasting and modeling, scenario-based planning, benchmarking, and data mining. Lawrence Lam, CEO of Prudential Hong Kong, describes his approach: "We make data work for us, not vice versa. Our corporate focus is customer centricity so the right mindset about data is built on customer centricity—knowing what customer pain points we want to solve, what data is relevant to drive that transformation, and where that data is available or not."

CEO Fernando González of Mexico-based building materials giant Cemex explains how he approaches different types of decision-making: "The orthodox response is that decisions should be data-driven. In many situations, this works. You adjust plant operations based on data—for example, an oven temperature should be based on data, not opinion. But in other situations, it is not as clear-cut. For example, deciding on an investment requires data but also other variables. How much do I trust the source of the information? Is the criteria behind the data correct? There are other reasons besides data behind some of my decisions—and I need to know when enough data is enough."

CEO Dirk Adelmann of German-based mobility firm smart Europe GmbH says he uses data but balances that approach by tapping into human experience and wisdom frequently: "If you start asking the right questions, you will see that the ideas are coming quite naturally from your teams. When I ask one person a question, two others are listening in and also have an answer. That is much more effective than me always giving choices for the direction we should go."

> "The orthodox response is that decisions should be data-driven. In many situations, this works . . . in other situations, it is not as clear-cut."

Fernando González
CEO, Cemex

Pushing smart decision-making into the organization

United Arab Emirates-based Majid Al Futtaim Retail is a franchisee for French grocery retailer Carrefour, operating some 450 Carrefour locations in 16 countries across the Middle East, Africa, and Asia, serving 750,000 customers daily and employing 37,000 team members.

Challenge: Shopping patterns and purchasing behaviors are very different across Majid Al Futtaim's store footprint. With a mix of consumers representing many nationalities, the company struggled to match demand and store-item assortments. For analytics, Majid Al Futtaim relied on an on-premises data warehouse solution that required significant manual intervention. SQL script coding was too slow to stay ahead of growing data demands and market complexity.

Solution: Majid Al Futtaim's leadership committed to more sophisticated data-driven decision-making to enable faster real-time adjustments. They implemented a hybrid cloud data and analytics platform architecture, a unified data hub for advanced analytics, and data-model development with built-in governance capabilities.

Results: Majid Al Futtaim is now able to make in-store changes faster and more precisely. With more advanced analytics and less time spent managing data, the company can test scenarios with a fail-fast mechanism, use data science tools to evaluate models, and ultimately get to market more quickly. The turnaround time for responding to business requests has improved by 100%.

What is the top barrier to AI adoption?

Biggest barriers to generative AI adoption

61%

Concerns around data lineage or provenance
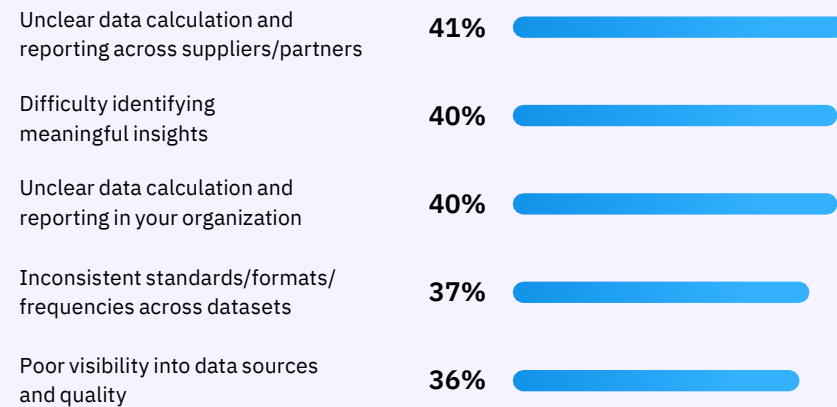
57%

Concerns about security of data

53%

Constrained by regulation/compliance

When CEOs struggle over adopting generative AI, their first concern is data. Without trusted, reliable data, even the best AI will deliver faulty, biased, or dangerous results. Yet getting your data house in order is no small task, and for many enterprises one that is far from complete. The top barriers: data lineage and provenance, a lack of proprietary data to customize, and security concerns.

Data concerns, however, reach beyond generative AI. Organizations have faced data challenges for years. In our research, top-performing companies in revenue, growth, and tech maturity focus on data standards and quality in ways that lagging peers fail to. The best CEOs know that, while not glamorous, fixing data shortcomings is an essential priority for competitive advantage.

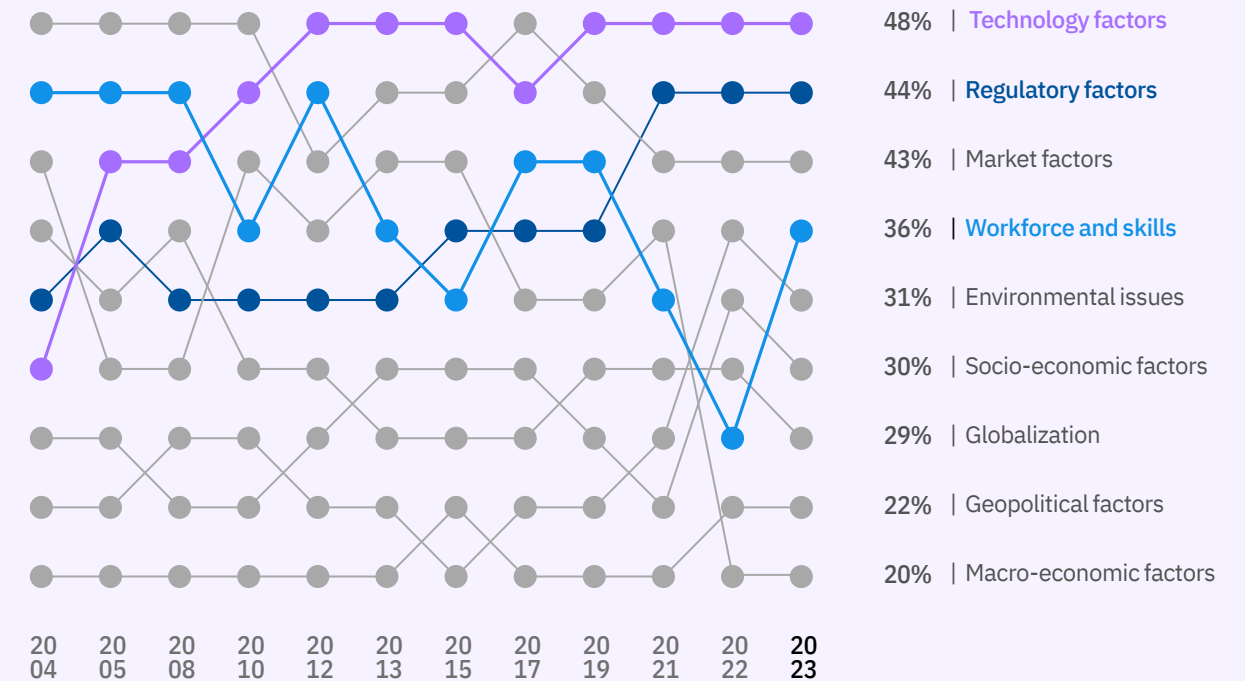*Overall data challenges for the organization*

Unclear data calculation and reporting across suppliers/partners	**41%**
Difficulty identifying meaningful insights	**40%**
Unclear data calculation and reporting in your organization	**40%**
Inconsistent standards/formats/ frequencies across datasets	**37%**
Poor visibility into data sources and quality	**36%**

Q: To what extent do you face the following data challenges today? (% reflects responses of a "great" or "very great" extent).
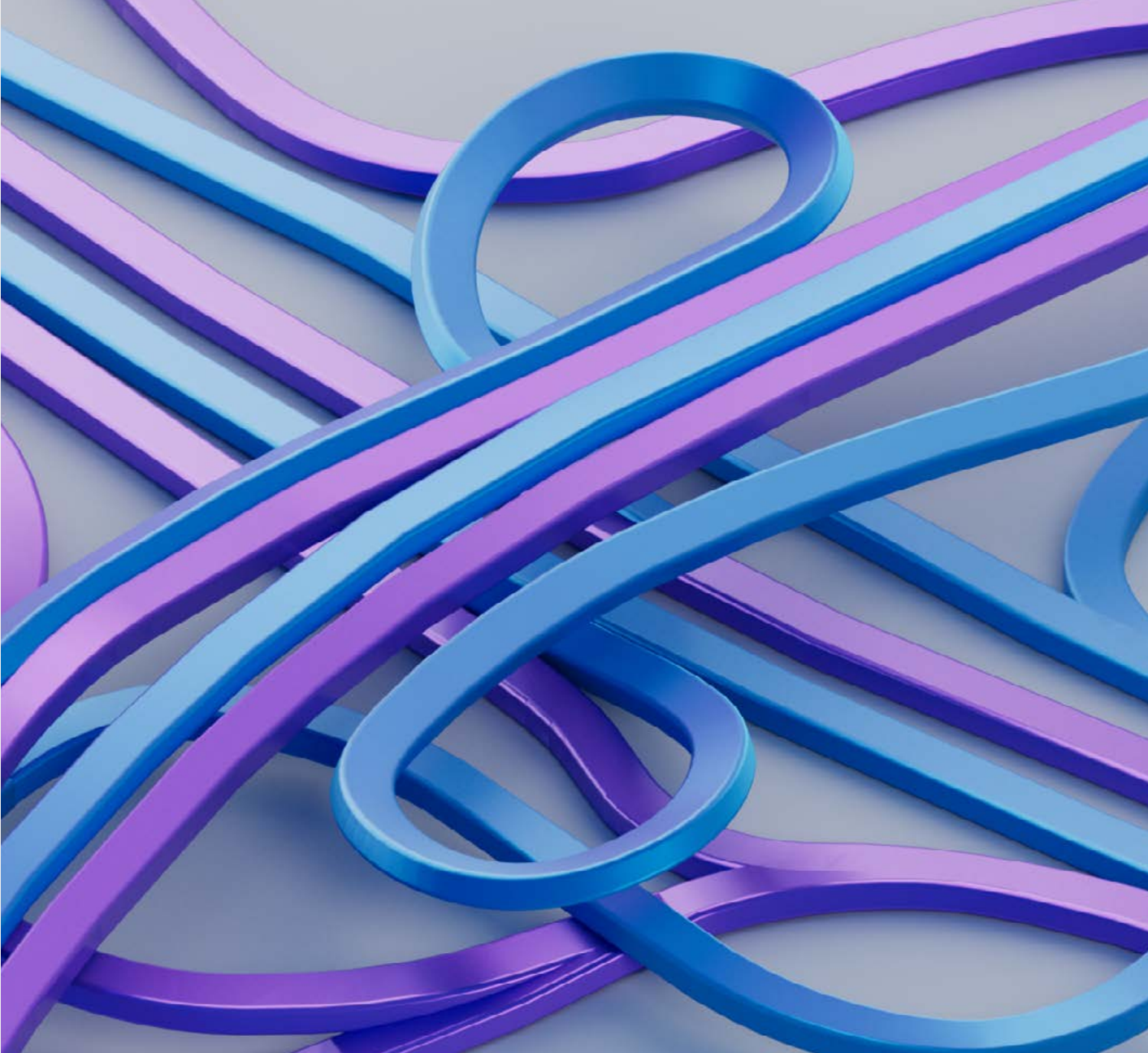
The external forces impacting CEOs over time

The most important external forces impacting CEOs and their organizations have varied since 2004, when the IBM IBV conducted its first CEO study. Technology steadily rose, peaking in 2012, and has remained fairly steady ever since as a top factor. Workforce and skills have been more variable, but appear to be rebounding as an issue of growing importance. And regulatory factors have been on a fairly steady climb since the study's inception, clocking into second place this year.

Technology and regulation continue to significantly impact organizations, while workforce and skills are rebounding

48%	Technology factors
44%	Regulatory factors
43%	Market factors
36%	Workforce and skills
31%	Environmental issues
30%	Socio-economic factors
29%	Globalization
22%	Geopolitical factors
20%	Macro-economic factors

2004 2005 2008 2010 2012 2013 2015 2017 2019 2021 2022 **2023**

Q: Which of the following external forces will most impact your enterprise over the next 3 years?

CEOs cannot just focus on the way they make their own decisions. Good Deciders-in-Chief also guide decision-making across the organization.
They set a framework for how decisions are made up and down the line, and how information about those decisions flows.

"If there are too many levels from the CEO to the grassroots employees," observes a chemicals company chairman, "all the information that should be transmitted to the upper level will be lost." The same intentionality that CEOs apply to their own decision-making must be baked into the decision-making systems across an enterprise.

"It is ultimately up to me to make sure that the organization adopts analytics in the way that is appropriate," says CaixaBank CEO Gortázar.

Part Two

Applying decisions across the organization

Managing AI from the bottom up

Our research shows that employees are already using generative AI platforms in their work—whether that's approved by executive leadership or not.[5] Done within a well-designed system, this can dramatically accelerate speed to insight and how quickly organizations can act on those insights. But it requires AI that "shows its work" to avoid misinformation—meaning AI that allows transparency into how it generated its insights—as well as a platform that enables secure use of proprietary information. Koichi Kameda, CEO of retail business Trial Holdings, Inc., explains: "The company's basic premise is to solve customers' problems, and it intends to explore what technologies can be used for what purposes in order to achieve this goal."

In all functional areas, generative AI use cases are ahead of formal business plans for generative AI. This trend indicates many companies are still in exploration mode. We asked CEOs about more than a dozen corporate functions and in every category, at least three-quarters of CEOs expect to have at least one use case complete and ready to deploy within the next 12 months.

Creating rules around generative AI can optimize the benefits while protecting ethics, avoiding bias, protecting intellectual property, and so on. Yet just one in four CEOs in our survey say they have issued any guidance on the use of generative AI within their organization. Some CEOs are now issuing moratoriums or bans on its internal use, particularly in industries such as financial services, technology, and communications.[6] What remains to be seen is where they go from here—whether or not this is just a temporary pause while they determine appropriate security, guardrails for use, and foundational models.

Meanwhile, teams are developing specific use cases–without an overarching organizational plan. In manufacturing, for instance, 34% of organizations have generative AI use cases ready, versus just 19% with formal plans.

To get ahead of this wave, top CEOs are initiating and deepening conversations with their teams about the use of AI—to both remove roadblocks to progress and to ensure safety measures are in place and promote responsible AI. They need guardrails that align with the organization's values and standards. They also need team members who have AI skills. "Acquiring digital experts is one of our biggest challenges, and I'm sure this is a challenge for all industries," says Tomoyuki Takaya, CEO, Cardif Assurances Risques Divers Japan / Chief Marketing and Transformation Officer, BNP Paribas Cardif Japan. "We need to be more flexible to secure digital talents, for example, through collaboration with our ecosystem partners and other industry players."
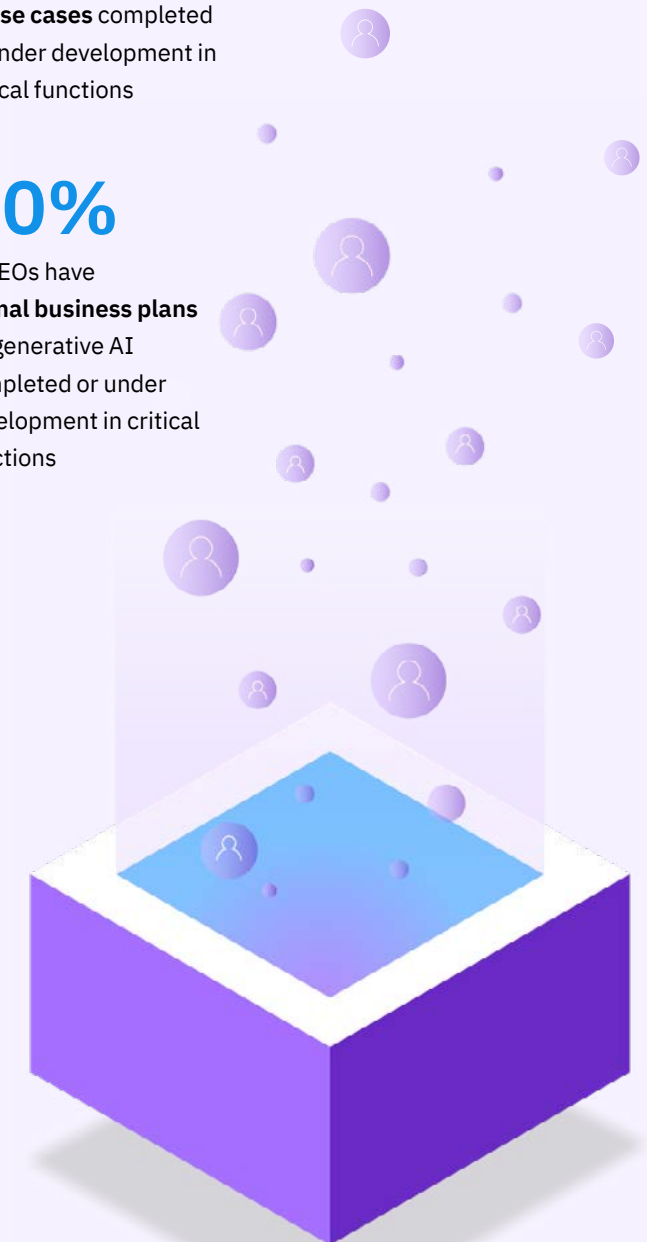
CaixaBank's Gortázar was frank about the mixed emotions AI exploration is causing: "Generative AI models surprise, impress, and scare us, all at the same time."

84%

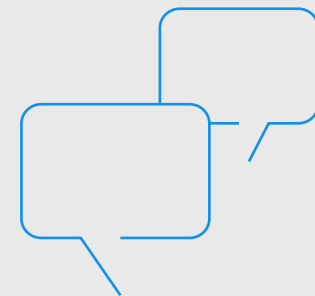of CEOs have generative AI **use cases** completed or under development in critical functions

70%

of CEOs have **formal business plans** for generative AI completed or under development in critical functions

"Effective decision-making is a combination of data, human judgment, and people's opinion. The best decisions are those where collaboration informs the process.

So, we take input from diverse groups—subject matter experts, data analysts, business leaders, and frontline employees who interact with customers. We take input from all these categories before making a decision."
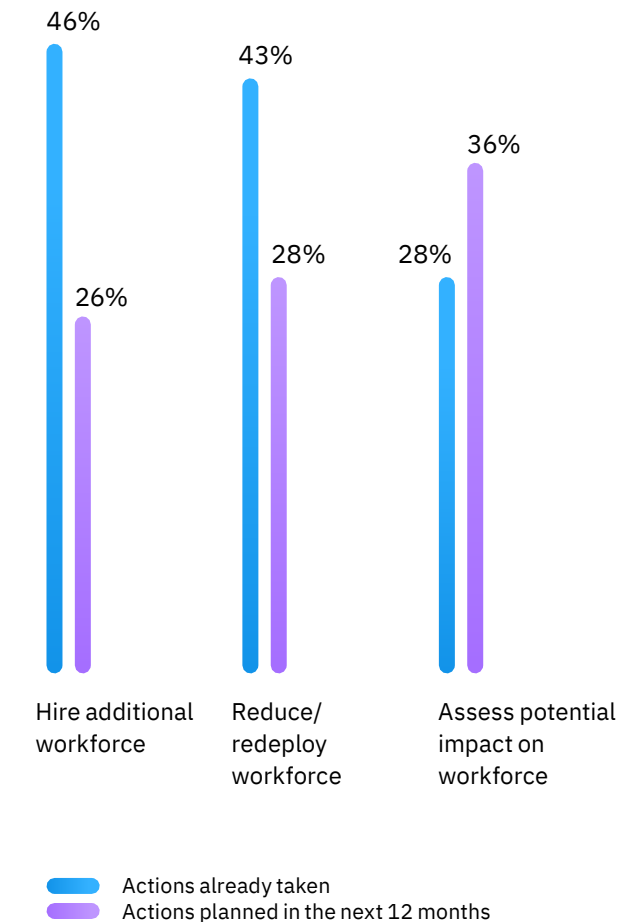
Baby George
CEO, Joyalukkas

Workforce planning in the hotseat

As AI invades the workplace, both consciously and surreptitiously, it is also fueling workforce disruption. Our research shows 43% of CEOs say they have reduced/redeployed their workforce due to generative AI, with an additional 28% saying they plan to do so in the next 12 months. Yet a similar proportion of CEOs report having hired additional people due to AI, with plans for more hiring ahead. The picture is muddled. Answering the question "what kind of workforce will I need" seems to be a decision that is largely unresolved.

Yet fewer than one in three CEOs have assessed the potential impact of generative AI on their workforce. This is among the most disquieting findings from our analysis. It means two out of three CEOs are acting without a clear view of how to help their workforce with the disruption and inevitable transitions AI will bring. Whether this is an oversight or a process that is lagging, it is something to watch—particularly as there appear to be significant gaps between CEOs and other senior executives when it comes to their sense of the organization's skills and readiness.

CEOs make workforce decisions due to generative AI

- 46% — Hire additional workforce (Actions already taken)
- 26% — Hire additional workforce (Actions planned in the next 12 months)
- 43% — Reduce/redeploy workforce (Actions already taken)
- 28% — Reduce/redeploy workforce (Actions planned in the next 12 months)
- 28% — Assess potential impact on workforce (Actions already taken)
- 36% — Assess potential impact on workforce (Actions planned in the next 12 months)

■ Actions already taken
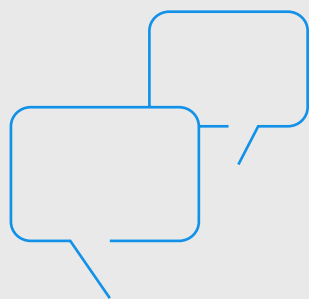■ Actions planned in the next 12 months

Q: Which of the following actions have you already taken/will you take in next 12 months with respect to generative AI?

"Try to engage your team. Before making an important decision, I try to confirm if my view is correct. And I try to share what is going into the decision in case my team has doubts or some different ideas."

Roberto Tomasi

Autostrade per l'Italia

Big questions also linger about the organizational readiness to embrace and implement AI in decision-making. Seven in 10 CEOs see broad benefits from AI across the organization but their executive teams are far more wary about AI and workforce readiness (see Figure 4). Only 29% of teams feel their organization already has the in-house expertise to adopt AI.

Teams are also worried about ensuring responsible AI. Only 30% of non-CEO senior executives say their organization is ready to adopt generative AI responsibily.

"You need people who can combine data, IT, and business process understanding," says Matti Lehmus, President and CEO, Neste, referring to AI adoption. "Then you can leverage your value opportunities." Without more pointed organization-wide decisions about AI—and greater matching of CEO goals with workforce characteristics and planning—too many enterprises will likely miss their window of opportunity to lead in the AI transition.

Figure 4

CEOs are eager to act on AI, but their teams are less confident

7 in 10 CEOs say generative AI brings broad benefits . . .

. . . while executives cite a lack of organizational readiness

69%

CEOs

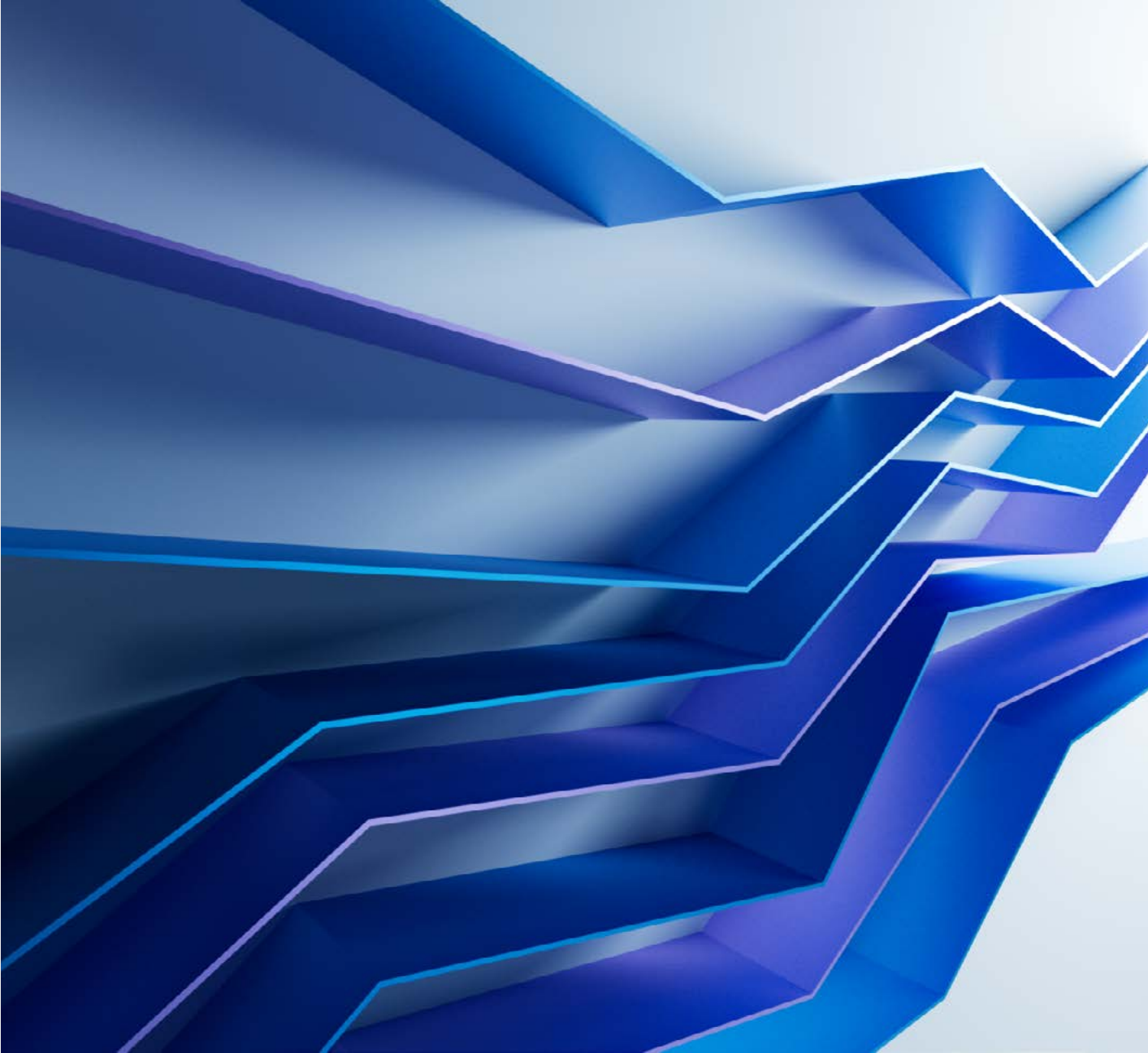I see broad benefits from generative AI across the organization

29%

Execs

My organization already has in-house expertise to adopt generative AI

Q: To what extent do you agree with the following statements? (% reflects responses for "Agree" or "Strongly agree").

The IBM IBV CEO Study has consistently asked leaders about their most pressing priorities. Compared with a year ago, productivity/ profitability has moved to the top of the list, pushing customer experience from the top position to third (see Figure 5). Given the global economic environment, the focus on the bottom-line may be unsurprising.
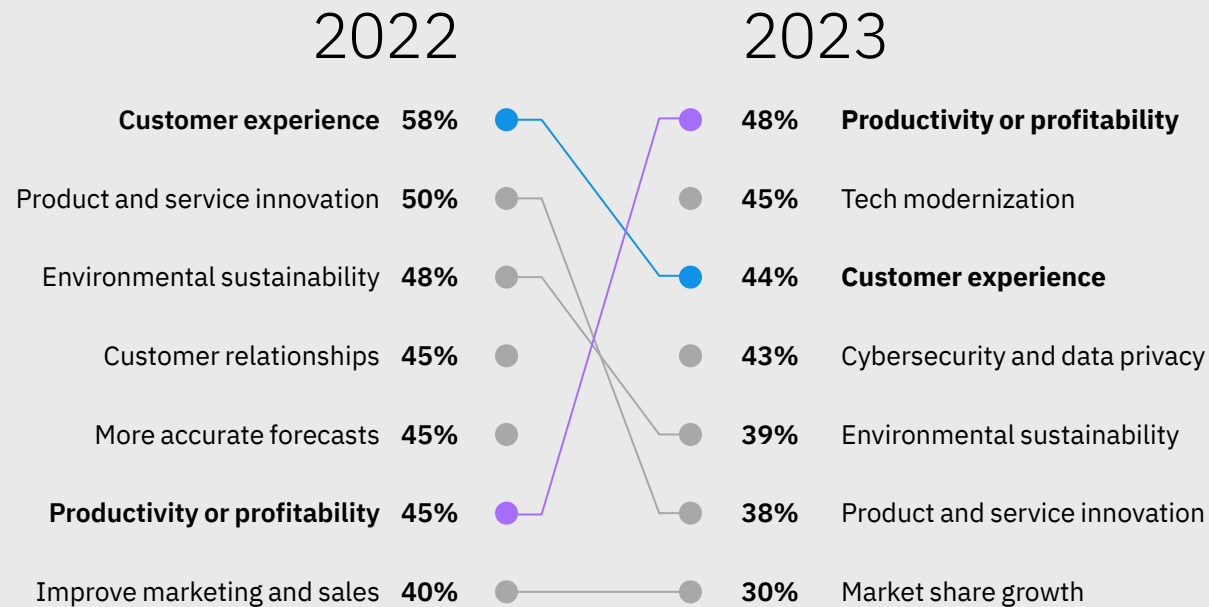
But the areas that most bedevil CEOs are those that are more ambiguous. As a company chairman notes, "The biggest feature of turbulent times is the increase in uncertainty. A large part of growth comes from dealing with that uncertainty."

Part Three

What decisions matter most?

Figure 5

Shifting CEO priorities

2022

			2023	
Customer experience	**58%**		**48%**	**Productivity or profitability**
Product and service innovation	50%		45%	Tech modernization
Environmental sustainability	48%		44%	**Customer experience**
Customer relationships	45%		43%	Cybersecurity and data privacy
More accurate forecasts	45%		39%	Environmental sustainability
Productivity or profitability	**45%**		**38%**	Product and service innovation
Improve marketing and sales	40%		30%	Market share growth

Q: Which of the following represent your organization's highest priorities over the next 3 years?

What are the CEO's most challenging issues?

While CEOs identify productivity and profitability as their top priority, they pinpoint sustainability and cybersecurity as their biggest challenges (see Figure 6).

Sustainability

Roughly 50% of CEOs and their executive teams now have compensation tied to sustainability goals, a significant jump from a year ago, when the figure was just 15%. "For us at smart, sustainability always has been and still is a hygiene factor: If you are not credible there as an EV-only brand, customers will not pick you," Adelmann of smart Europe tells us. And in fact, our 2022 CEO study revealed that chief executives who align their sustainability strategy with their digital transformation reported revenue growth of up to 41% higher than those who did not align their efforts.[7]

Yet while 95% of companies have operational ESG goals, only 10% have made significant progress toward meeting them.[8] This is a significant decision-making disconnect. "I don't think there's any organization that will tell you sustainability isn't important," says CaixaBank's Gortázar. "The first thing to differentiate is who is just talking and who really believes that. The CEO may be saying a whole series of things that look good, but the reality is that often it is not embedded in the operation."

Figure 6
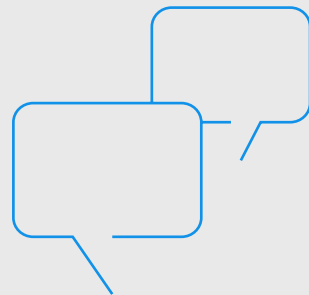
CEOs' top challenges over the next 3 years

42%
Environmental sustainability

32%
Cybersecurity/data privacy

27%
Tech modernization

25%
Talent recruiting/retention

24%
Diversity and inclusion

22%
Forecast accuracy

21%
Ecosystems and partnerships

Q: Which of the following represent your organization's greatest challenges over the next 3 years?

> "Decision-making is not just taking data and trying to model accurately but spending time also on the uncertainties and working around those."

Matti Lehmus
President and CEO, Neste

Trial Holdings Inc. is promoting efforts to reduce energy use and decarbonization. For example, the company is utilizing abandoned educational facilities for its R&D site rather than renovating buildings. The company emphasizes the importance of utilizing existing assets as much as possible.

Complicating the issue is sustainability's expanding definition and organizational uncertainty around appropriate metrics. There's also doubt about the trustworthiness of sustainability reporting. Only about 45% of CEOs reported confidence in the ability to report on ESG strategy and initiatives, as well as data security and privacy, with accuracy.[9] In addition, public trust has fallen in what is being reported.[10] Matti Lehmus, President and CEO, Neste, explains the challenge: "Decision-making is not just taking data and trying to model accurately but spending time also on the uncertainties and working around those. For instance, the sustainability lens continues to broaden into topics like biodiversity. We are just now as an industry and as society developing good metrics—how to measure, what type of data to use." Tracking and measurement in the sustainability space is a huge issue, according to the CEOs we interviewed.

Cybersecurity

Three out of four CEOs (76%) say that effective cybersecurity across their business ecosystems requires consistent standards and governance. That's a tough issue for large national organizations but an almost impossible one for global ones, who must deal with different sets of standards and regulations. Generative AI and quantum computing (due to the need for quantum encryption) are poised to dramatically complicate an already very challenging space.

CEOs need to rely increasingly on their Chief Data Officers (CDOs), as decisions about data and cybersecurity multiply. Six out of 10 (61%) CDOs said their organizational data is secure and protected, but they also shared that they struggle with data management issues such as reliability (47%), regulatory barriers (37%), unclear data ownership (36%), and data siloes/lack of data integration (33%)—further complicating protecting data and privacy.[11]
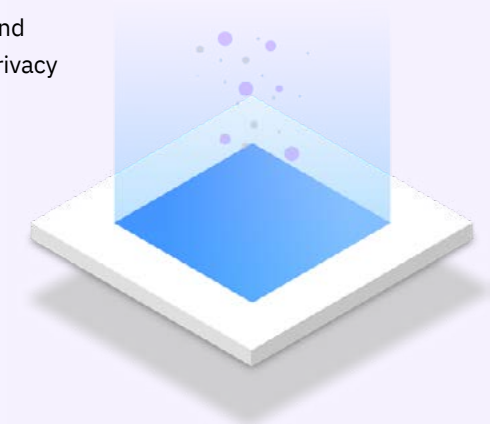
"Cybersecurity is one of those races where you can never win—you just need to know if you're ready," says CEO and President Javier Tamargo of Canadian transportation firm 407 ETR. "We're transforming our systems and migrating to the cloud because we recognize that as a safer environment."

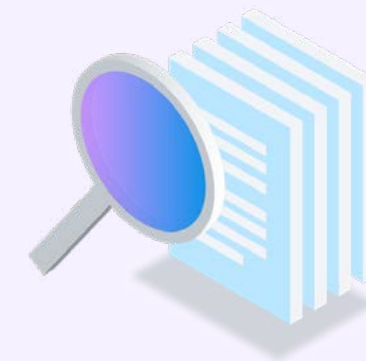## Security-related data concerns keep CEOs up at night

While
54%
of government/regulators are demanding more data transparency and accountability around data security and privacy
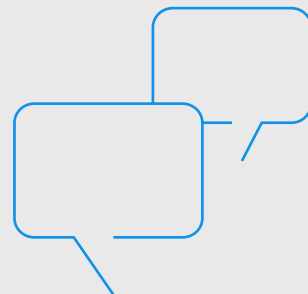
Only
55%
of CEOs are confident their organization has the ability to accurately and completely report the information stakeholders demand around data security and privacy

"I don't think there's any organization that will tell you sustainability isn't important. The first thing to differentiate is who is just talking and who really believes that. The CEO may be saying a whole series of things that look good, but the reality is that often it is not embedded in the operation."

Gonzalo Gortázar
CEO, CaixaBank

Identifying a single source of truth

Melbourne Water is a government authority that protects and manages water resources for the City of Melbourne, in Victoria, Australia. "We treat about 90% of Melbourne's sewage at our Eastern and Western Treatment Plants," says Daniel Bradshaw, Energy Accountant at Melbourne Water. "Energy use is a primary expense across the organization and accounts for about half the Victorian water sector's total carbon emissions."

Challenge: Melbourne Water pledged to help lead the state's water sector in climate change mitigation. To reduce energy consumption and leverage renewable alternatives would require a detailed tracking tool that the organization did not possess. "We were using a legacy data management system that was cumbersome, limited, and difficult to use," Bradshaw recalls. The system relied on manual data entry and file uploads, which often led to poor data quality. "A single misplaced comma could send the entire data set askew," Bradshaw says. What's more, users needed specific knowledge of the system's functionality, limiting who could access and analyze the data.

Solution: Melbourne Water decided to create a single source of truth for its energy use, using cloud-based data and analytics software.

Results: Teams can now generate sustainability reports in hours, versus days, and analyze historical activity to permit the targeted replacement of many non-renewable energy sources in its treatment and transfer system with renewable resources such as solar panels, hydroelectric power stations, and sewage gas combustion engines. Melbourne Water can also track the performance of its renewable projects.

Leading an organization has never been harder than it is right now—and in all likelihood, the challenges will only escalate from here. CEOs need to expect and embrace uncertainty, and they also need to embrace new tools that enhance outcomes.

The emergence of generative AI as a business and decision-making tool is a defining moment. The choice? To be a passive consumer or a wise AI value creator. CEOs need to define a clear plan and charge ahead, have the right capabilities in place, and handle disruptions of all shapes and sizes without slowing down or losing focus on strategic vision. Leaders can't be distracted by shiny objects, lured down dark alleys, tempted by easy fixes, or lulled into complacency.

Part Four

Better decisions for a better world

"Sometimes the CEO has to make a decision without a clear view to the final result. That's when you say, 'I think this is the direction. I don't know how to achieve this result, but I have to move. And I will try to better understand the situation.'

Today, you can't be certain about the future. Sometimes you have to make the decision to head in one direction and rely on your ability to try to change direction midstream if you need to."

Roberto Tomasi
CEO, Autostrade per l'Italia

"Sometimes the CEO has to make a decision without a clear view," says Autostrade per l'Italia CEO Roberto Tomasi. "You can't be certain about the future, and sometimes you have to rely on your ability to change direction midstream. We need stakeholders to allow that we can make a mistake. This is extremely important in situations where the future is very uncertain."

With humans and AI working together, a new wave of competitiveness has arrived.

No single decision-making model will suffice for all situations. CEOs must bet on the community of talent within their team and invest in that team to enable higher performance. "Definitely, it helps to have information to make better decisions," says President Carlos Zenteno of telecommunications firm Claro Colombia. "For me, artificial intelligence helps identify processes or patterns and comparisons with others in the industry. There is also a lot of intuition and a lot of human experience that goes into decisions, but always supported by numbers and analysis."

Ready for what is coming?

In what ways are CEOs waiting to respond, and how do CEOs turn those impulses and areas forward: to prepare, pre-empt, think forward? Farsighted CEOs have generally built a vision of the world to come that's positive—and AI for good must be prioritized, to make that vision a reality. Use the action guide that follows to assess your own decision-making and how best to take it to the next level.

Action guide

Here's what top CEOs should prioritize to elevate decision-making in the age of AI.

CEO leadership

- **Get everyone smart on tech and data.** Provide targeted training specifically designed for an AI world. Elevate those, such as your CDO, who have the expertise and insight to bring together business strategy, technology strategy, and data strategy.
- **Make "outcomes over activity" a mantra.** Be prepared to terminate projects that are not delivering the intended value, supporting strategic goals, or following ethical guidelines.
- **Make the data work for you, not vice versa.** Use a broad range of planning approaches, including forecasting and modeling, scenario-based planning, benchmarking, and data mining. Recognize that no single decision-making model will suffice for all situations.

Metrics and decision-making

- **Eliminate layers between the data source and the decision maker** while prioritizing flexibility over control.
- **Guide decision-making across the organization,** setting a framework for how decisions are made up and down the line, and how information about those decisions flows.
- **Rely on your Chief Data Officer (CDO) for decisions about data and cybersecurity,** including data management, data reliability, regulatory factors, data ownership, and data integration.
- Ask the Chief Sustainability Officer (CSO) and Chief Financial Officer (CFO) to **create a balanced sustainability/profitability roadmap.**
- **Set the rules.** Look for opportunities to define standards around sustainability, data security and privacy, and all forms of AI.

Talent and workforces

- **Assess the potential impact of generative AI on your workforce.** Act with a clear view of how to help your workforce with the disruption and inevitable transitions AI will bring.
- **Implement "digital-first" solutions to increase efficiency, engage talent, and develop new skills.** Empower those with complementary skillsets to co-develop AI and reimagine workflows.
- **Know where your talent is coming from.** Recognize potential skills shortages and align top talent to areas most critical to competitive advantage.

Technology and data

- **Change the enterprise mindset from "adding AI" to "starting with AI."** Initiate and deepen conversations with your teams about the use of AI, to remove roadblocks to progress and to ensure safety measures are in place. Promote responsible AI through guardrails that align with the organization's values and standards.
- **Check the dash.** Use a digital dashboard to provide real-time integrated insights across the organization.
- **Fix data shortcomings.** In an era of generative AI, prioritizing data lineage and provenance, customizable proprietary data, and data security is crucial.
- **Identify AI use cases that align with your organization's principles, broader technical guidelines, and architecture.** Prioritize applications where AI can boost competitiveness, innovation, and unique business value.
- **Accelerate transition to zero-trust security across the enterprise and partner network** to power secure interactions, workflows, and innovation. Ensure consistent standards and governance for effective cybersecurity, including the areas around generative AI and quantum computing.

Ecosystem and partners

- **Simplify, digitize, and partner to build a resilient enterprise.** Leverage open innovation and create new opportunities by connecting external and open data. Build a common platform using open hybrid technology that is consistent, scalable, and optimized for the organization and partner ecosystem.
- **Align targets with ecosystem partners,** encouraging and reinforcing the use of consistent metrics and incentivizing collective action. Increase security at every point in the ecosystem by adopting zero trust security practices.
- **Select key ecosystem partners and double down.** Evaluate the strength of current and potential partners and invest in those that will make a difference and help form a winning team going forward.

Research and analysis methodology

The IBM Institute for Business Value, in cooperation with Oxford Economics, interviewed 3,000 CEOs from over 30 countries and 24 industries as part of the 28th edition of the IBM C-suite Study series. These conversations, completed from February through April 2023, focused on executives' perspectives on leadership and business; their changing roles and responsibilities; and CEO decision-making today, including key challenges and opportunities, their use of technology, data, and metrics, and their visions for the future. Insights were also drawn from numerous client conversations including more than a dozen deep-dive interviews with CEOs conducted explicitly for this study from March through May 2023.

Respondents in our study represent the most senior executives in their organizations: CEOs, Public Leaders, General Managers, and Managing Directors. The IBM IBV designed data collection by geographic location and industry, with representatives across organizations of various sizes as defined by annual revenue or, in the case of public sector organizations, annual budgets.

For this study, IBM IBV used a series of analytical methods to identify a group of respondents whose performance across a variety of factors in our 2023 IBM CEO study survey instrument differentiated them from the overall respondent population. Those in this group expressed strong confidence in both their existing digital infrastructure and the breadth of their decision-making capability.

IBM IBV, in cooperation with Oxford Economics, also conducted a survey of 200 CEOs in the United States on their response to generative AI. These additional responses were collected in April through May 2023.

Contributors

Notes and sources

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