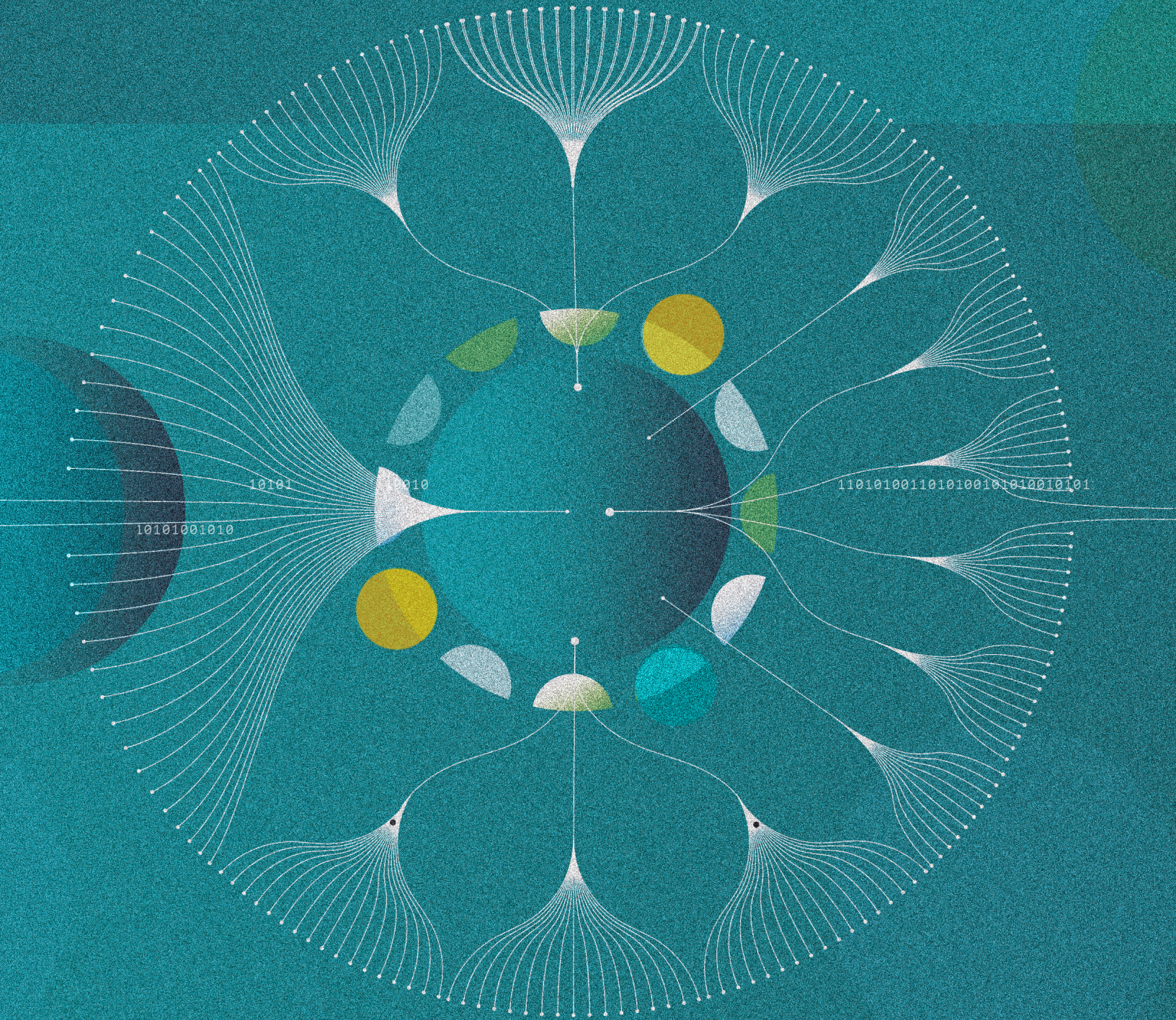


The transformational tech leader: Driving change to help unlock growth and deliver lasting impact

Deloitte's 2023 Global Technology Leadership Study finds that tech executives should be strategic change agents who shape and spark the ambitions of entire companies while maintaining the integrity of the infrastructure that enables it all.



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Executive summary

When we last published the *Global Technology Leadership Study* in 2020, right at the cusp of the COVID-19 pandemic, leaders were faced with unprecedented uncertainty around what the future would hold for their organizations.

At the time, we expressed that businesses needed their technology leaders to be resilient, agile, and future-focused to lead their organizations through unprecedented change. Now, three years later, our 2023 research suggests that technology is not just offering companies a competitive edge, but it's increasingly becoming a source of revenue and growth.

ABOUT THE RESEARCH

For this study, Deloitte surveyed 1,179 global leaders in 2022, including chief information officers (CIOs), chief technology officers (CTOs), and other senior technology decision-makers. We also conducted qualitative interviews with more than 100 technology executives spanning a range of sectors. They shared their perspectives on talent shortages, data integrity and security, the rise of automation, as well as the reconfiguration of the technology function.

Whereas technology once enabled the business, now it often drives the business. So, when we set out to survey and interview thousands of cross-industry executives around the globe last year, our goal was to explore this evolution in more detail and learn how tech leaders are adapting as a result.

We learned that tech leaders, now more than ever before, are strategic change agents who shape and spark the ambitions of entire companies while helping ensure the resilience of the infrastructure that enables it all.

This report unveils four key takeaways from our recent study, each of which has a chapter in the pages that follow.

- **Transformational tech leadership should include five core competencies:** Tech leaders have a larger number of mandates and are often expected to drive organization-wide initiatives ranging from digital transformation to ESG. Their responsibilities have also become increasingly dispersed and overly complex, making it difficult for one person to manage it all.

While chief information officers (CIOs) often lead their organization's tech function (72% of those surveyed report having a CIO), we're seeing a rise of other tech chief roles, including chief data officers (27%), chief digital officers (25%), and chief information security officers (47%), among others. From all these varying roles and responsibilities, we've identified five competencies of transformational tech leadership—engineer, architect, data scientist, change agent, and owner—as well as five ways leaders can best capitalize on the evolution we're witnessing today. While every organization may not have all these roles, it is likely important to ensure that your tech function has the competencies to deliver on these mandates. Otherwise, you could put your organization at a competitive disadvantage.

- **Talent, not technology, may be your secret weapon:** Tech talent could determine the success of your organization. Yet, less than a quarter (23%) of the executives surveyed say attracting and developing diverse talent is a top priority for their tech function. While it may be tempting to outsource critical tech capabilities, doing so may be risky. A tech leader, in short, should think of talent not as a cost but as fuel for achieving strategic outcomes. As such, we have outlined key considerations for building strong teams.

The first is flexibility. When we asked which measures have been the most successful for retaining top tech talent, 57% of executives said offering flexible/hybrid work environments. Yet building an aggressive tech talent strategy and pipeline can't stop there. Tech leaders should also address skills gaps intentionally and promote the meaning and purpose behind work rather than just the work itself. Talent development was a key topic in our interviews, and many tech leaders are creating opportunities for talent to chart their own career paths, hiring for enduring human skills (in addition to technical skills), and prioritizing diversity to ensure inclusion in their tech workforce.

- **Monetize your data and software or bust:** More than a third (36%) of executives we surveyed say they're currently generating revenue from data or technology; another 16% plan to do so in the next two years. Monetization can come in many flavors—from commercializing proprietary software to leveraging data to create value or optimize existing operations—and tech leaders say they are investing significantly to build monetization capabilities

that expand the scope and impact of technology in their enterprises. No matter what industry you're in, monetization can help unlock future growth. To inspire you to chart your own journey, we've provided a few real-world examples and strategies for how tech leaders can shepherd these efforts forward.

- **Strategically allocate capital to maximize the impact of your tech investments:** Tech spending as a percentage of revenue has increased from 3.28% in 2016 to 5.49% in 2023. With bigger budgets often comes increased scrutiny, oversight, and expectations from the business; so, tech leaders should be thoughtful about allocating capital for tech investments and savvy about measuring and articulating the value of these investments. Our research shows that 6 in 10 executives struggle to do just that—so, we've identified five strategies to help overcome this challenge: Burn your current tech strategy; strike a balance between qualitative and quantitative measures; eliminate lengthy budget cycles and review; never present costs without highlighting the impacts; and recognize that this exercise is as much an art as a science.

In addition to these four overarching themes, which span across industries and geographies, we have also found some notable differences across sectors and regions, which are highlighted in the appendix.

But irrespective of the industry or region you're in, one thing is clear: Today, tech leaders can either make or break your company. It's a strong statement, but one in which we firmly believe.

Yet, although tech leaders have immense responsibility (and opportunity), they alone will likely not be able to drive and sustain lasting change. For technology to be the fabric of your business, the rest of the C-suite and business leaders should step up their tech acumen and enable this change.

For organizations to truly thrive in the years ahead, the C-suite should be a tech champion and the entire organization should be digitally savvy. If your organization isn't, you may risk being left behind.



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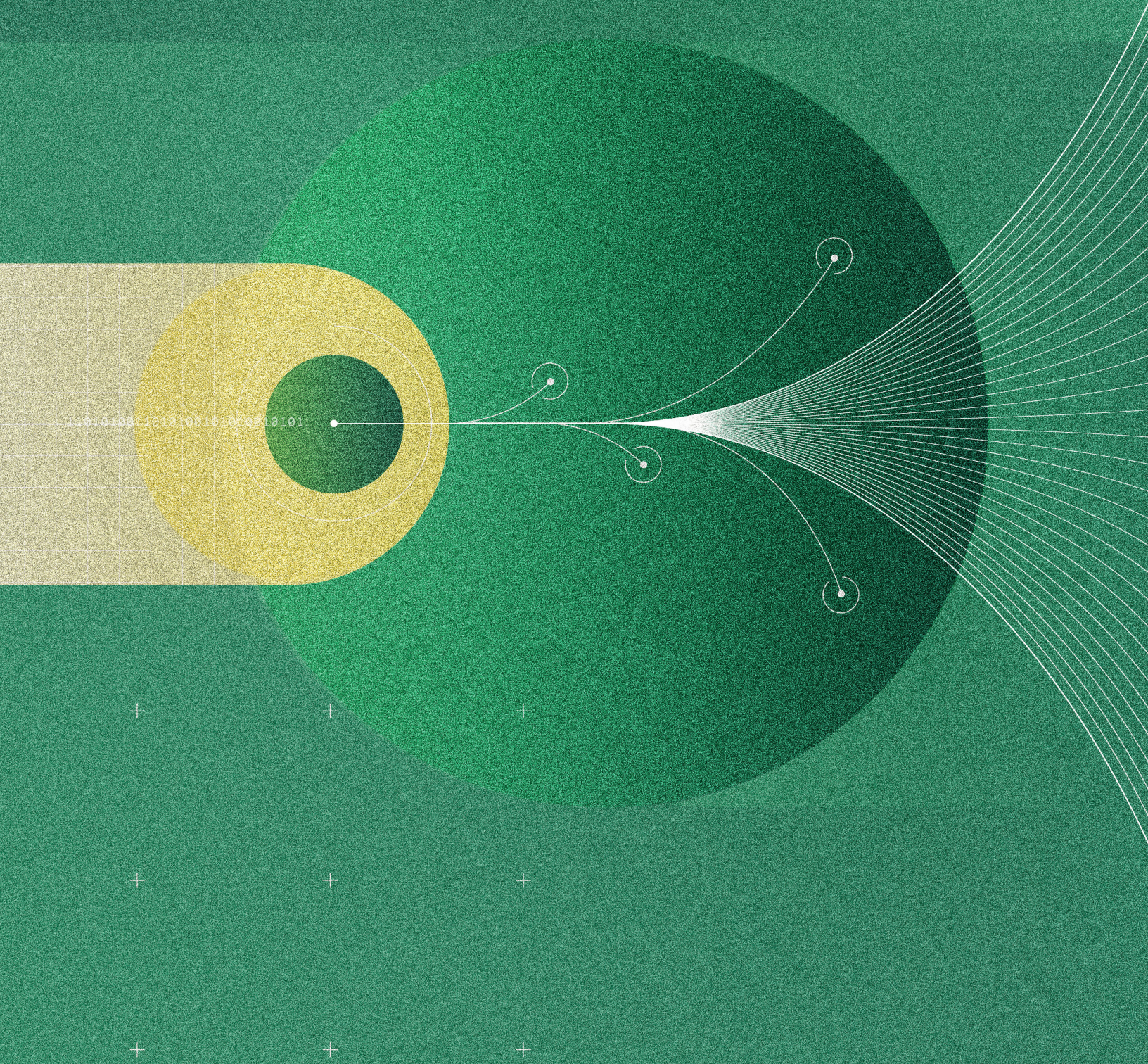
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Chapter 1





Understanding the five competencies of transformational technology leadership

In part one of our findings, we look at how technology leadership roles have evolved, and the competencies tech executives can build in order to thrive in today's environment.

Today's technology leaders understand their role has changed. It's not enough to be an expert or specialist or independent operator. Instead, technology leadership is now a team sport—and that places an emphasis on the abilities of leaders to collaborate, communicate, coordinate, and cocreate.

Tech leaders should lead a synchronized team with multiple talents and competencies, all working toward the transformation of the enterprise. Deloitte's [2023 Global Technology Leadership Study](#) shows how savvy tech leaders are not only rising to this challenge but also charting new career paths for themselves and the people on their teams.

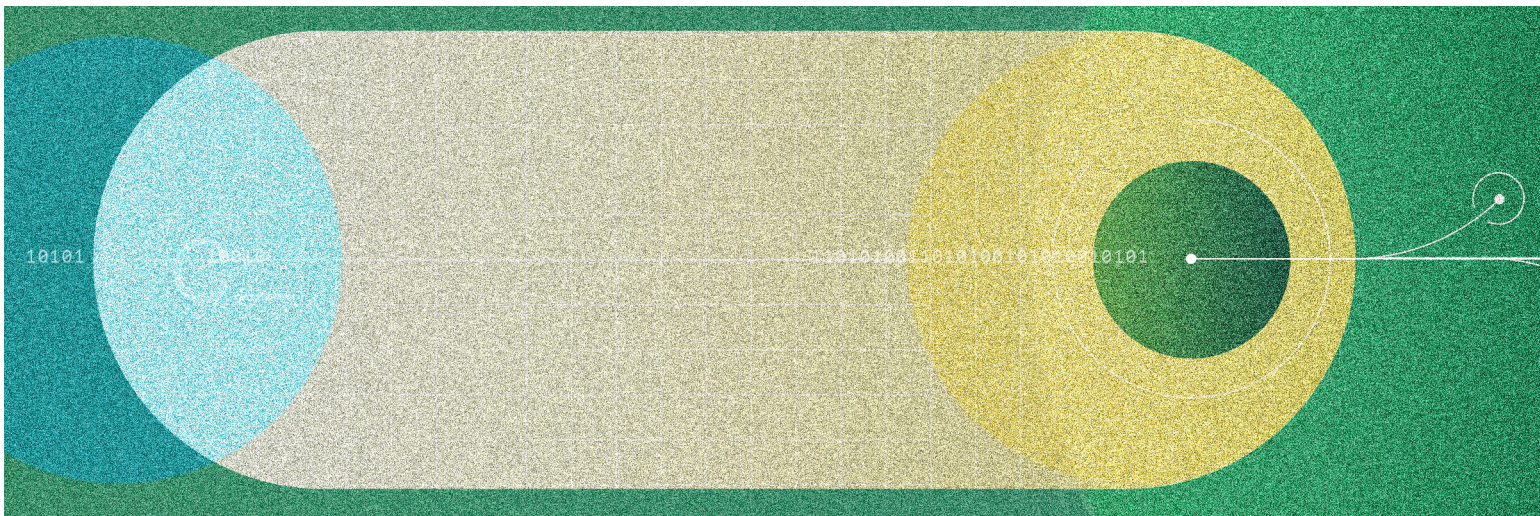
“The way that technology has been engaged by the business, [and] the way we collaborate, has all changed significantly over the last few years, not just in terms of how we deliver solutions, but how we generate ideas based off business needs and feedback from customers,”

says Sathish Muthukrishnan, chief information, data, and digital officer at Ally Financial. “The CIO role and technology is no longer a cost center. I think of the function as a value generator and a revenue generator. Everything we do is critically connected to the business.”

Chris Kozlowski, CTO at TVN, part of Warner Bros Discovery, is also witnessing this evolution first-hand.

“The technology function is changing its role from seamless operations to seamless leadership,” he says. “A few years ago, technology was successful when it was not visible to the business. Now the success is when the technology function ‘invisibly’ coleads the business.”

This chapter explores this shift in more detail and highlights five distinct competencies tech executives can build to become transformational tech leaders.



The evolution of technology leadership

Since our [2020 study](#), technology has continued to reinvent how businesses operate. This, along with the pressures of the COVID-19 pandemic, has contributed to the dispersion and expansion of technology leadership roles. New opportunities for harnessing and monetizing data have emerged, and tech is seen not only as a strategy enabler, but a strategy cocreator.

As a result of these shifts, the responsibilities of tech leaders have become increasingly dispersed. This is evidenced by the rise of the chief data officer, chief digital officer, and other senior technology leadership roles—all disciplines tech leaders should now master, coordinate, and integrate across the enterprise.

About a quarter of the organizations we surveyed report having a chief data officer (27%) or chief digital officer (25%). Seventy-two percent have a chief information officer, 51% have a chief technology officer, and 47% have a chief information security officer. Nine percent of organizations surveyed had all three of these titles—a chief digital officer, a chief data officer, and a chief technology officer.

This dispersion is likely the result of a wide spectrum of expectations. On the one hand, tech leaders may be tasked with being innovative and strategic, and on the other, they may need to ensure operational reliability and cybersecurity. When asked to rank the top five areas where they spend the majority of their time, respondents say they're expected to prioritize everything from business/digital strategy development (35%) to innovation (22%) to driving organizational tech fluency (15%) (figure 1).

In addition to this dispersion, tech leaders surveyed report an overall expansion in their role—they are expected to drive organization-wide initiatives as varied as tech fluency (43%), innovation (37%), and even strategic planning (13%). Even when they don't lead a specific initiative, respondents indicated that the expectation is still that the tech function will provide tools and analysis on areas ranging from diversity, equity, and inclusion (DEI) programs to environmental, social, and governance (ESG) efforts (figure 2).

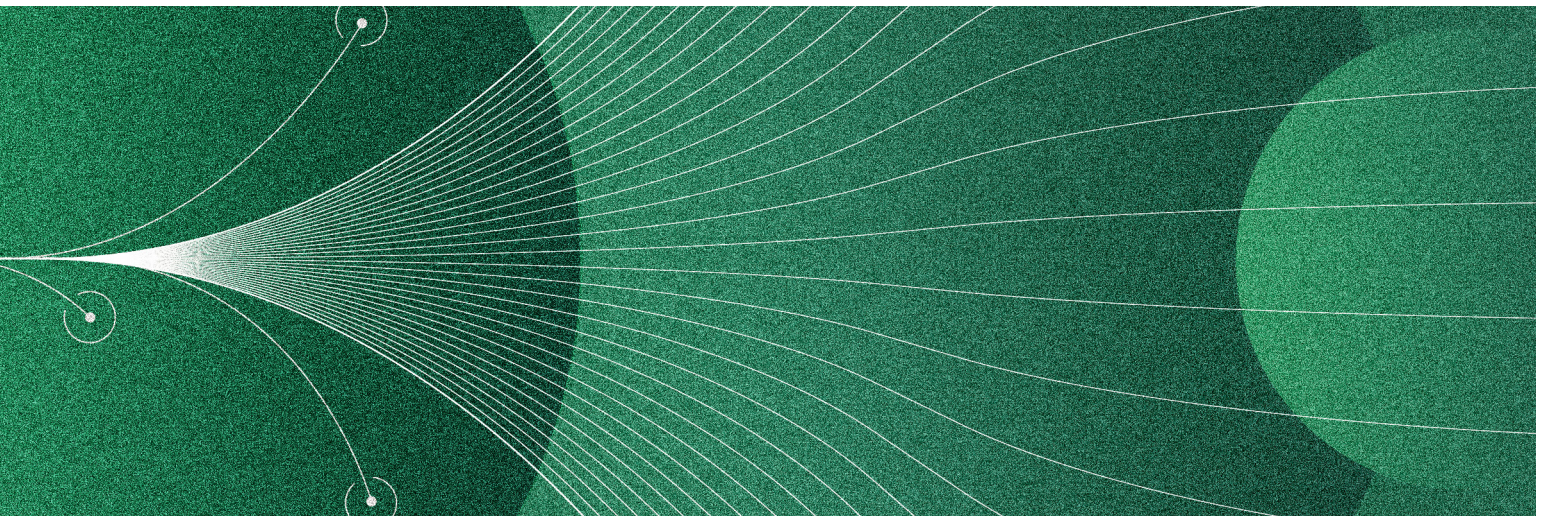
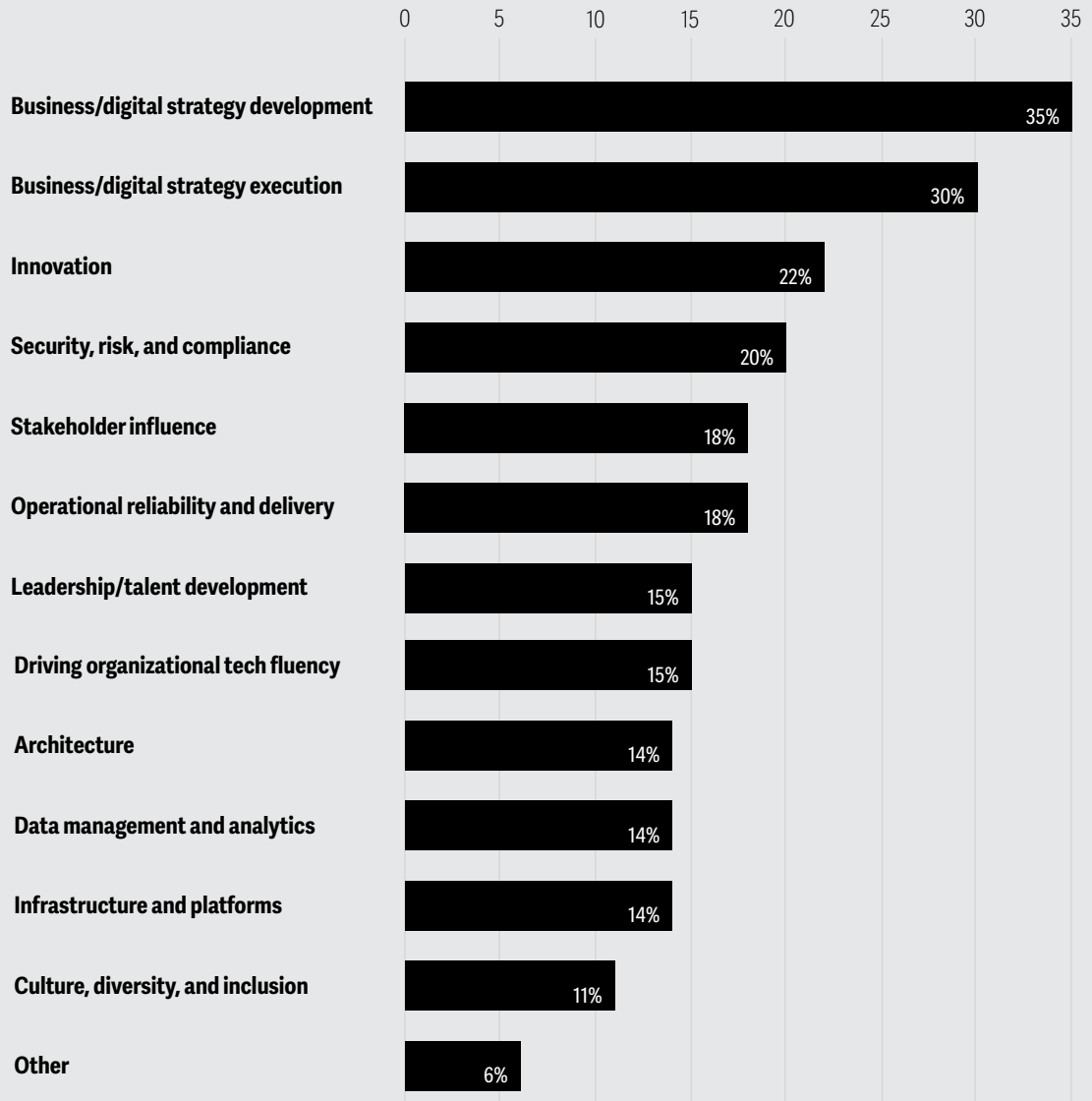


Figure 1

Tech leaders' focus areas indicate a multimodal role with a dual mandate of accelerating growth while ensuring operational excellence

Please rank the top five areas where you currently spend the majority of your time, effort, and energy.



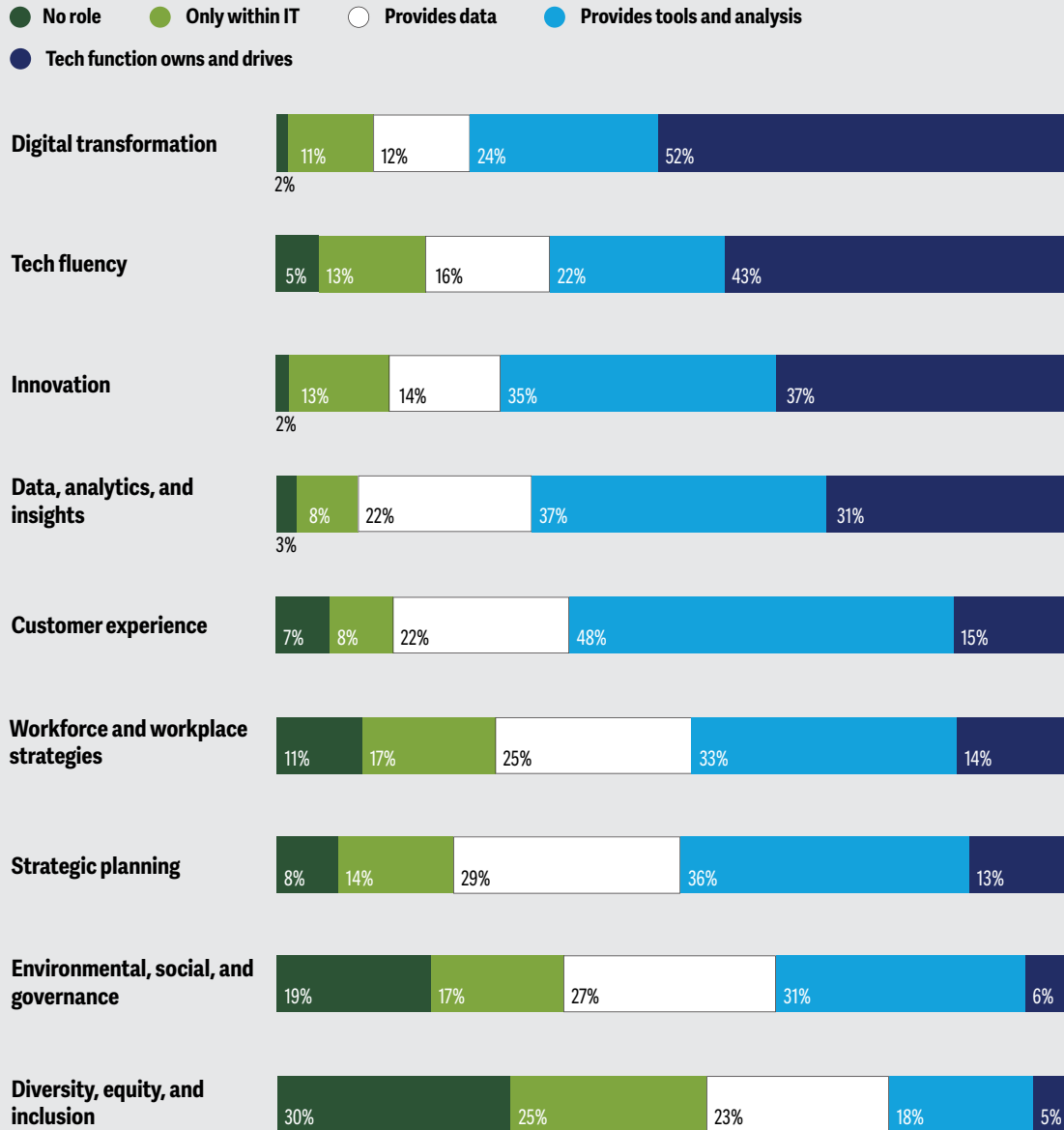
Note: Respondents' top response has been shown; N=1,179.

Source: Deloitte 2023 Global Technology Leadership Study.

Figure 2

Tech leaders are now expected to drive organization-wide initiatives ranging from tech fluency to ESG

What is the technology function's role in driving the following organization-wide initiatives?



Note: N=1,176.

Source: Deloitte 2023 Global Technology Leadership Study.

But with so many items on a tech leader's to-do list, what can actually get done?

Some of the tech leaders surveyed say the key is to be strategic and focused on delivering value. "A lot of people spend time collecting data and never have the time to really do any analysis with it, or at most they just scratch the surface," says Jennifer Krolikowski, CIO for the US federal government's Space Systems Command. "It's not having everybody figure out how to be data scientists. It's getting to the point that in a matter of minutes, instead of weeks or months, you have power to automate that data, visualize it, and make decisions on it."

A key, it appears, may be how the tech team divides and conquers—and partners.

When it comes to health care, for example, Brian Lucotch, president of enGen, a subsidiary of Highmark Health, says, "Technology isn't just the great enabler of business, it's a key component of the long overdue transformation of the health care industry. We want to bring business and technology closer together so that we not only understand their needs but can also help shape and form their next-generation solutions. Our goal is to bring payers and providers together within our health ecosystem to support patients in their health journeys."

The five competencies of transformational technology leadership

With all of these various roles and responsibilities, how can tech leaders effectively create value?

Our study suggests that those who excel not only have core competencies like tech fluency, data management and monetization, innovation, change management, and business acumen, but they follow a structured, **competencies-based approach** where they develop and nurture five distinct abilities across their organizations and leadership teams.

1. **Engineer.** These leaders have the ability to build, operate, and optimize business operations and technology capabilities. This competency requires deep operational expertise, technical acumen, and

a deep commitment to creating operational value. Their primary responsibility is to build, operate, and maintain technology applications and infrastructure to be efficient, effective, and secure.

2. **Architect.** Architects can envision, design, and oversee technology environments to help ensure resilience and scalability while maintaining agility. These leaders should also stay ahead of new and emerging technologies and continually explore and experiment to keep their organizations competitive.
3. **Data scientist.** These leaders are expected to collect, manage, and analyze data while delivering insights and identifying opportunities to monetize tech assets and drive business growth.
4. **Change agent.** Tech leaders with this competency are experts at instigating, managing, and delivering large complex digital transformations across the enterprise. They deliver value by transforming business processes, employee and customer experiences, and/or business operations.
5. **Owner.** Tech leaders, especially at the business-unit level, should have deep business acumen and stakeholder relationships so they can preemptively identify business challenges and create innovative solutions. This competency allows a tech professional to be viewed as a leader within a business area.

The five competencies detailed above and personified by a diverse team of leaders should be integrated and coordinated. When successful, this approach could create an engine for value—with the possibility of creating multiple career pathways for talented leaders as well as a long-term legacy.

Some of the best tech leaders and organizations could create multidisciplinary teams filled with highly competent leaders at multiple levels of seniority, each with their own portfolio. The technology talent may be dispersed within the organization but could be integrated into a single function. These teams might work across the business and become a source for solutions, as well as early sensors of transformative technologies and potential new value drivers.

Currently, in some organizations, the five competencies are expected to reside within a single role or position—the CIO or highest-ranking tech leader. But it may be time to share and disperse these roles and responsibilities among a team of coordinated leaders. For example, a chief digital officer could focus on organizational transformation, while a chief data officer could focus on data monetization. Ideally, CIOs and tech leaders would help the C-suite make the best use of this matrixed and coordinated team.

When these five competencies reside within the entire technology team—especially at a high level—transformation of the entire enterprise could become more possible. “At Deloitte, since FY20, we’ve worked to grow revenue faster than headcount—liberating 6.7 million hours through standardization, automation and technology across our businesses and enabling areas,” says Doug Beaudoin, Deloitte US Chief Clients and Markets Officer.

At one American manufacturer, leaders have streamlined operations to enhance productivity. “We used to have four or five layers sitting between us and the end customer,” says the company’s former chief digital and information officer. “We’ve taken out layers and did a lot of insourcing because we realized technology is going to be the place to double down in the long term.”

A great tech leader with a strong data competency will bring critical opportunities and issues to the surface. “When I first joined Lilly, we weren’t really using a lot of anomaly detection,” says Diogo Rau, EVP and chief information and digital officer at Eli Lilly and Company. “Now we are doing it in our clinical trials, and we can do it in the manufacturing process to detect defects. Quality of data is incredibly important.”

And a great tech leader, enabled by a competency as a data scientist or a change agent, can also be a powerful voice for the best and highest possible uses of technology investment. “We’re not going to be able to automate ourselves out of this talent shortage,” says the former CIO of a large broadband company. “Human-centered design is probably the single biggest area of impact that we’ve had on the business.”

By using advanced analytics to create and democratize insights throughout the enterprise, a technology team’s data leaders can emerge as an asset to the business. The

same can be true for leaders in cybersecurity and data privacy. These are increasingly high-profile and even brand-defining issues for many organizations, and technology leaders could use these portfolios to help build influence in the coming decades. In fact, 70% of respondents said cybersecurity was the digital transformation initiative they’re currently pursuing or planning to pursue in the next two years.

This is perhaps most true in areas of emerging board-level interest. In our study, 49% of tech leaders say the tech function is supporting the measurement of, and compliance to, sustainability goals and regulations, and 47% say the tech function is working on lowering its environmental footprint (through sustainable data centers, energy efficiency, etc.).

Capitalizing on the moment: What tech leaders should consider today

It’s clear that tech leaders have more responsibility than ever before. But with this ever-growing list of mandates and expectations comes opportunity.

The CIO role is no longer necessarily the pinnacle of a tech-based career; the path is open to the COO and/or CEO for the truly skilled professional, and tech leaders who recognize this and rise to the challenges of the moment could see their careers flourish. To deliver value today, consider the following:

- **Lead with purpose:** Successful tech leaders should build a strong sense of purpose across their organization. One health care CIO said they are able to compete for talent with big tech companies by offering a “compelling mission to serve humanity.” Another CIO in oil and gas said they attract talent with their aggressive stance on developing sustainable energy sources. Almost half (47%) of the technology leaders surveyed reported that having a compelling mission, vision, and purpose allowed them to retain top talent.
- **Go slow to go fast:** Taking the time to clarify roles, develop guardrails, create efficient decision structures, and develop robust oversight could ultimately allow organizations to move quickly. In organizations that are increasingly matrixed and

layered with decision-makers, tech leaders should take the time to establish the governance essential to dynamic but deliberate organizations. Moving from analog to digital governance may require a shift in mindset from control to enablement, from bottlenecks to automated flow, and from friction to cocreation.

- **Take on responsibilities beyond the tech domain:** Today, technology's impact spans far beyond IT, so the roles and responsibilities of tech leaders should evolve to the same world-changing level as the technology they're tasked with managing. To add value, look beyond the IT department. Develop a deep understanding of other disciplines and their needs, or, for instance, consider serving on the board of another company. But remember that delivering value is sometimes only half the battle. Framing, marketing, and communicating this value effectively to various stakeholders is also key and can require special attention, discipline, and skill.
- **Embrace multimodal delivery:** For decades, monolithic operating models (plan, build, run) worked for technology leaders. Now there are more management and technology options available: Agile vs. waterfall, product vs. project-based, on-premises vs. in the cloud, cocreated or not. Each way of working comes with its own set of considerations.

A strict top-down organization structure can hinder innovation and speed of delivery. At the same time, a purely bottom-up approach can impede learning, re-use, or the ability to scale. Every organization may need to operate across multiple operating modes simultaneously to address their business challenges. Leaders may need to adopt appropriate operating models based on scenarios and requirements. These models should also evolve over time to adapt to new ways of working and business performance results.

- **Move from enterprise transformation to transformational leadership:** It can be a lot to ask a person to be both an effective tech leader (with all the challenges that entails) as well as an enterprise change leader. Tech leaders may be required to be transformational business leaders, shaping and sparking the

ambitions of their entire company while maintaining the integrity of the infrastructure that enables it all.

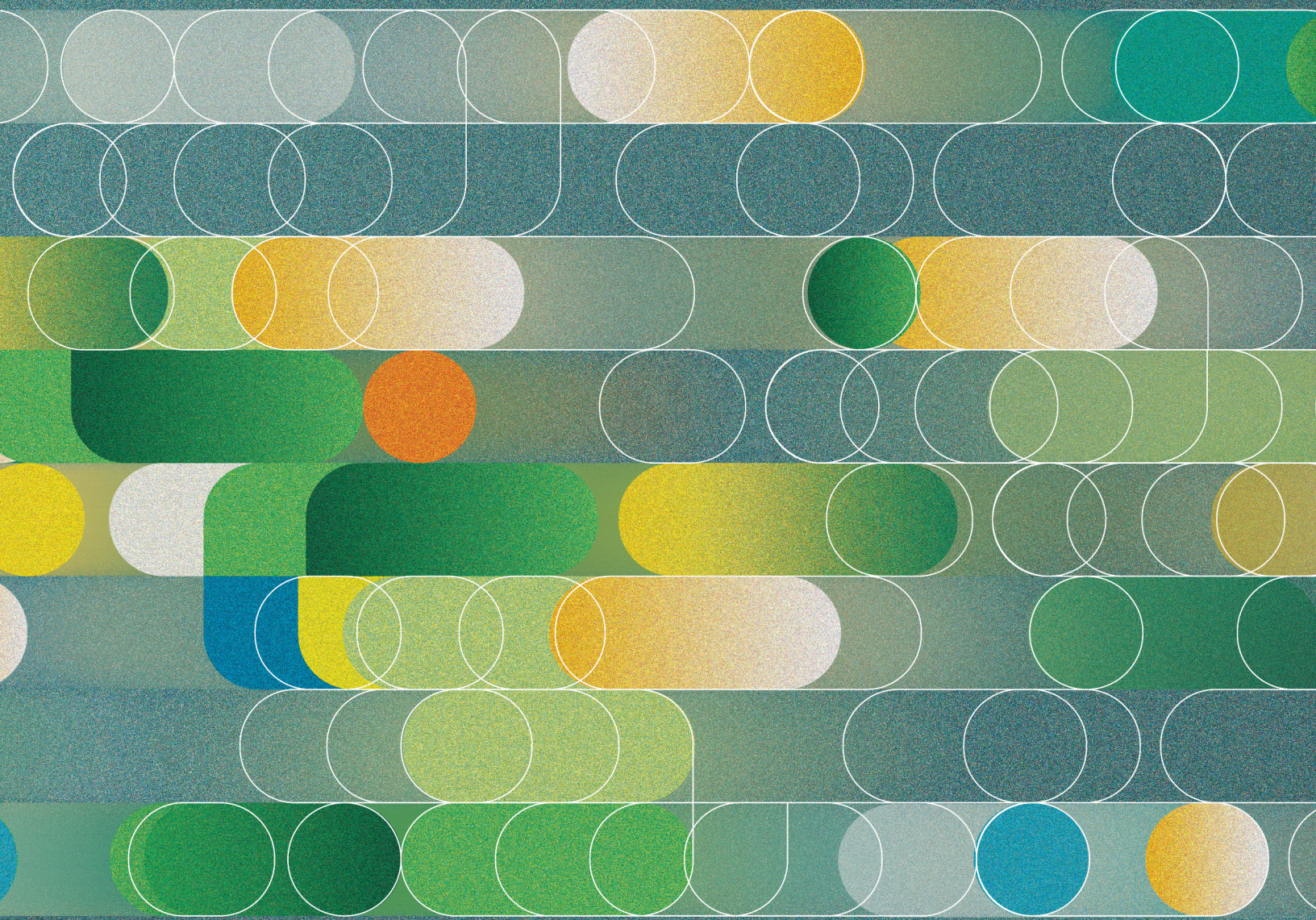
In our interviews with leading CIOs across the globe we were impressed by the enormity of demands that are placed on these leaders and the scale of impact they have had on their organizations. As tech leaders focus on purpose, governance, agility, and multimodal delivery, they should also build capacity and capability across the enterprise to constantly adapt to change. This could mean taking full advantage of the broader ecosystem or developing in-house alliances to help get the requisite funding and resources to build capacity.

By elevating themselves, tech leaders can help elevate their staff and the next rung of leaders in technology. In a real sense, this could mean tech leaders are not just transforming and reinventing their organizations, but they are also transforming themselves. Many of these actions might not come naturally, but the competencies to perform them can be developed. For tech leaders, this may be a new type of challenge—but it's the one great leaders rise to meet.

In the end, tech leaders will be prepared for the fresh challenges of their role not by being outstanding at the technical demands of their function. True, these capabilities matter, and are often at the heart of a great technology team, whether they are app development, cloud management, cybersecurity, data monetization, AI, blockchain, or some other critical tech portfolio.

But the great tech leaders of today—and tomorrow—are able to imagine how to assemble these skills within the matrix of the five core competencies that will determine the success of the enterprise. In short, these great tech leaders can prove themselves worthy not only of leading an outstanding team, but an outstanding organization. This is why we believe today's best tech leaders will become outstanding CEOs and corporate directors. They will have what it takes.

Chapter 2





Reimagine your tech talent strategy: Talent, not technology, may be your secret weapon

In part two of our findings, we explore the complexities of developing a technology talent strategy today and six steps to consider.

Nearly anyone can build or buy outstanding technology, but very few can build, recruit, retain, and inspire an outstanding tech team.

While many tech companies have recently announced major layoffs that have expanded the talent pool, tech organizations still face a competitive talent market.¹ In fact, only 13% of employers surveyed say they can hire and retain the tech talent they need most.² With 72% of US tech employees considering leaving their jobs in the next year, the situation is not likely to get any better.³

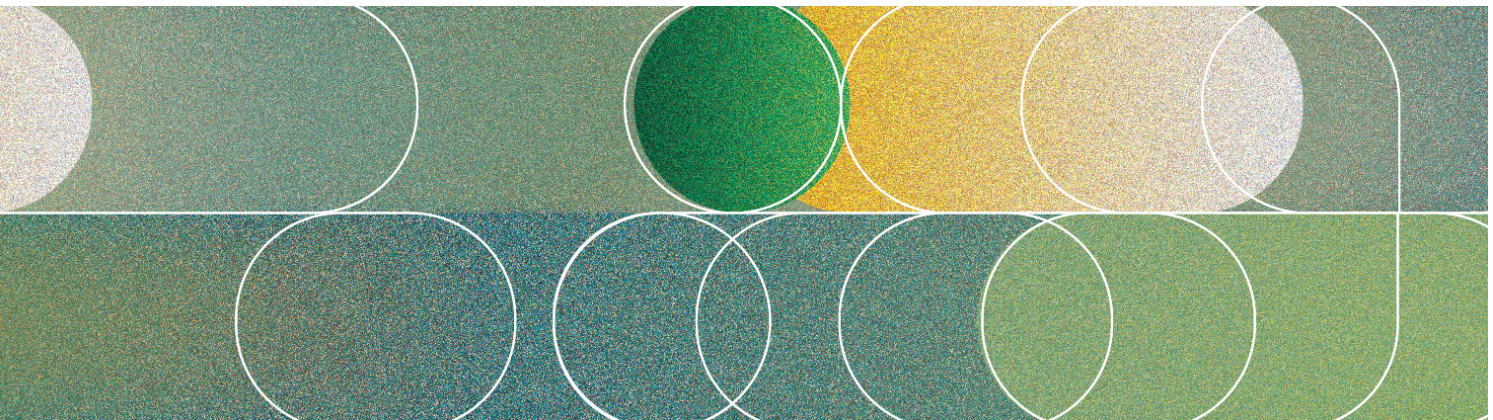
The US economy could stand to lose US\$162 billion a year in revenue if companies can't find the right tech talent.⁴ Yet, less than a quarter of the 1,179 executives surveyed as part of Deloitte's *2023 Global Technology Leadership Study* say attracting and developing talent is a top priority for their tech function. The biggest items on the tech agenda are optimizing business operations, modernizing legacy systems, and improving cybersecurity. And yet, without the right talent, achieving these goals will be that much more challenging.

Now is the time for technology leaders to build an aggressive tech talent strategy and pipeline. It's not just a matter of filling tech positions. It's a strategic priority and could even affect the ability of the enterprise to grow.

Consider that more than a third of executives in Deloitte's Global Technology Leadership Study say technology and tech-enabled services generate revenue for their enterprise. Additionally, more than half say their digital transformation efforts over the next two years will focus on developing new tech-enabled products, services, and/or platforms. And yet, 46% say limited skills, capacity, or ability of the technology function was a constraint in delivering value from these initiatives.

In short, the competition for talent is often intense and very few organizations say they have access to people with the right skills and capabilities to help their company grow. Overcoming this challenge is important; in every market, in every company, people—not technology—are the differentiator.

This chapter explores today's talent challenges and shares six considerations for building a winning, long-term tech talent strategy.



The complexities of developing a tech talent strategy

The talent challenge can be complex, and further complicated by several competing demands. Technology leaders often need to balance their short-term operational goals with long-term transformation projects, for example. Is the talent pool equipped to meet both these competing demands? What about the kinds of skills needed to manage the transition to decentralized architectures and ecosystems, while also bringing greater centralization and process uniformity to the handling of sensitive data?⁵

And then there is the challenge of culture. In many tech teams, a handful of “rock stars” often coexist with gig/contract workers and others, all working in different environments, from in-person to virtual to hybrid. What happens when a technology officer needs to bring the team together, coordinate approaches, and reward collaboration? And, of course, there’s the complexity of cost: Can the tech function be allowed to compete for talent the way other parts of the organization can?

Talent is often one of the biggest expenses in the tech budget, but is it managed as a cost or as an investment?⁶ Our view is that spending on talent should have a strategy like any other major expense category. It should require a long-term investment mindset, with the expectation of a return. At the same time, it should be responsive to changes in business demands and competitive outlook.

A tech leader, in short, could think of talent not as a cost but as fuel to achieving strategic outcomes.

Six key considerations for building strong tech teams

In our first chapter in this series, we described five “archetypes” that comprise great tech teams. As tech leaders develop an integrated talent strategy, six key steps emerge as essential markers for an effective and sustainable approach.

1. **Fight for flexibility:** Our study found that offering flexible/hybrid work environments was viewed as the top way to retain high-performing tech talent (figure 1)—and tech professionals have come to expect it. In fact, other research shows that 52% of tech talent prefer a remote-first model and a third wish to work fully remote indefinitely.⁷ Additionally, 46% of tech employees admit they’d consider leaving an organization that stopped offering the flexibility to work remotely.⁸

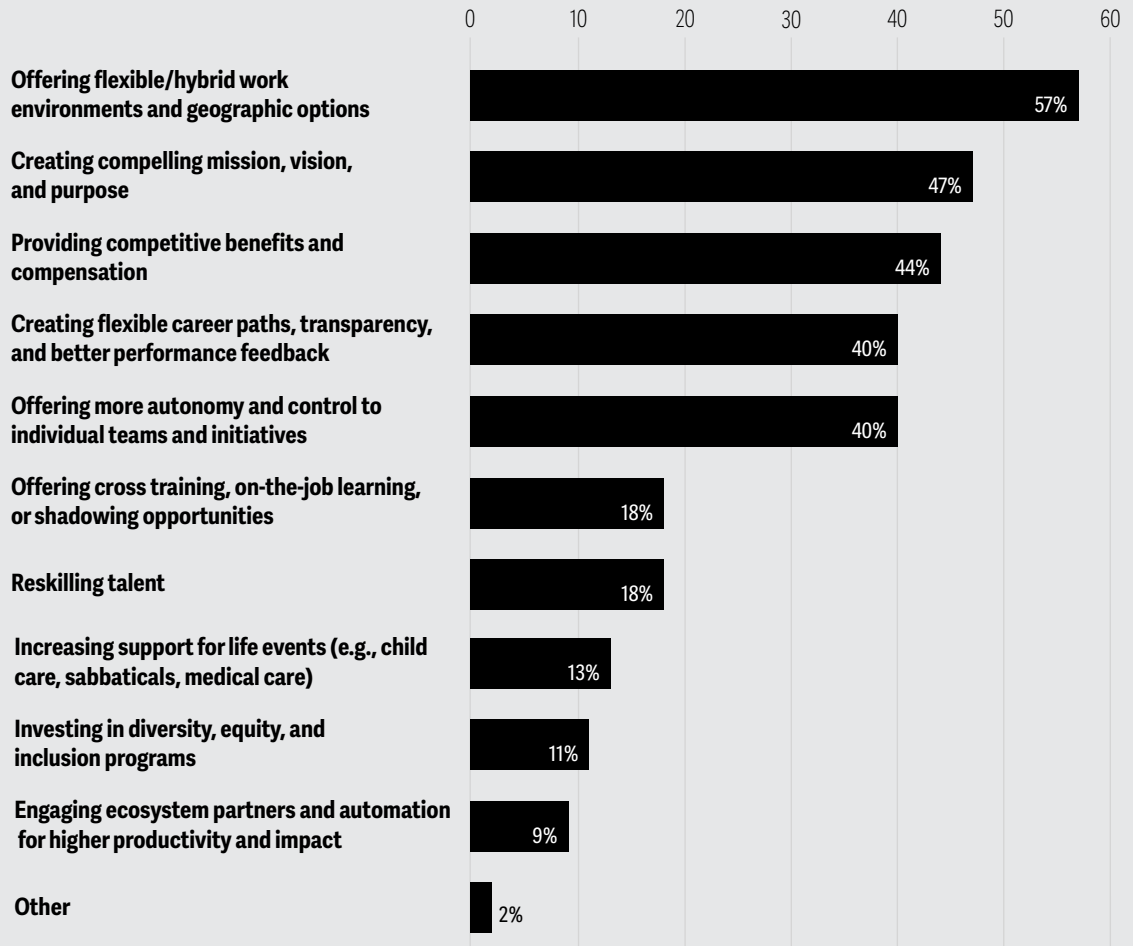
“The importance of offering flexibility cannot be understated,” says Joe Weider, senior vice president (SVP) and CTO at Lincoln Financial Group. “When we’re recruiting, as soon as we introduce our hybrid work model, we start to get a lot more interest. In our experience, employees place a high value on flexibility of location.”

This flexibility can offer companies greater access to talent across multiple geographies: “If I need a very, very acute skill and it’s available in country ‘X’ where I don’t have any presence, the big difference today versus, say, five years ago, is I have an option to consider it, whereas it would have been impossible before,” says Patrick Noon, chief information and digital officer at Bechtel.

Figure 1

Offering flexible and hybrid work environments is the single best way to retain top tech talent

Which of the following measures have you found to be the most successful for retaining top technology talent? Please select the top three.



Note: N=809; this is a multiselect question, so percentages will not add to 100.

Source: Deloitte 2023 Global Technology Leadership Study

While the talent needs seem clear, our research also finds that business leaders are more likely to prefer in-person working models. When asked which future workplace models they plan to establish for their tech function, 33% of business

leaders say mostly in-person, whereas only 14% of tech leaders say the same. Additionally, whereas 13% of tech leaders say mostly remote would be ideal, zero business leaders say the same.

Navigating these conflicting demands could mean expanding the concept of how technology work is planned, managed, and executed. Consider offering flexible work arrangements, and if your leadership team does desire in-person work, ensure that work is around moments that matter—for instance, team building and coordination that are important to the function—and not around an arbitrary requirement set by someone else. A successful tech leader can then promote the team’s work based on what they accomplished, not where they accomplished it.

2. **Promote the meaning and purpose behind the work, not the work itself:** In addition to flexibility, top talent is also seeking organizations with a palpable purpose. In our study, creating a compelling mission, vision, and purpose was cited as the second best way to retain high-performing talent.

Additionally, when it comes to *attracting* top talent, the biggest incentive that draws tech professionals to new job opportunities is the work (54%) they would do in a given role.⁹ It’s not just a job they want—it’s a job with purpose, and tech leaders are trying to meet that expectation.

“Engineers throughout history built the Great Wall, built the aqueducts and Rome, and the Taj Mahal. They have felt the importance of purpose, and sometimes this gets lost in engineering,” says Diogo Rau, executive vice president (EVP) and chief information and digital officer at Eli Lilly and Company. “It’s pretty simple: Do you want your life’s work to be focused on getting somebody to spend 12 more seconds on a web page, or do you want to use your skills to cure cancer?”

Even for companies that don’t have as big of a societal mission, there is still a way to embed purpose and mission into tech-focused work. Be clear about the challenges tech professionals are helping solve. “It matters that we talk about how exciting the work is and how relevant it is to the purpose of that individual and the overall company,” says Ravi Radhakrishnan, CIO at American Express.

“My talent strategy is very simple,” says Sathish Muthukrishnan, chief information, data, and digital officer at Ally Financial. “Create an environment

where every teammate gets to unleash their full potential. So much so that they become rock stars courted by every other company, yet no one wants to leave Ally because they’re doing meaningful and challenging work and growing.”

3. **Let talent chart their own career paths:** Research has shown that the top reason engaged employees opt to seek out a new job is due to a lack of learning and growth opportunities.¹⁰ In fact, 41% of surveyed IT workers cite a lack of career progression as a reason for wanting to quit their jobs.¹¹

One of the hallmarks of the digital era is the value of range—a great digital specialist is likely able to go deep when necessary but will often adjust course to develop new skills when the landscape shifts. Thus, tech leaders are looking to give room to high performers to adapt and learn, depending on where their curiosity and sense of purpose takes them. Instead of trying to build a team of “10x” engineers, it’s better to build a team of “10-job” engineers—serial specialists who can build depth in multiple areas over the course of their careers.¹²

Reskilling and learning,¹³ it appears, may be necessary, but even more important could be recognizing the value of multiple career paths to your talent. That means supporting not only their learning and development but also giving them greater insight into their career opportunities at multiple touchpoints, more frequent performance feedback, and greater autonomy and control to shape their careers and teams as desired.

“Moving workloads to the cloud isn’t enough without reskilling and restructuring the entire IT organization,” says Rahul Samant, EVP and CIO at Delta Air Lines. “We’re developing career-journey maps for team members to show them how, through experiential learning, classroom coaching and buddying, we’re going to advance them from here to there. Our message is: ‘Every one of you is an integral part of this journey, and we cannot deliver on our speed-to-market and productivity goals unless we work differently and equip teams with the new skills they need to succeed.’ This is about helping everyone adapt to change and understand how they are contributing to Delta’s transformation.”

Another key approach is to develop alternative career models, especially apprenticeships.¹⁴ “Apprenticeships are an important part of our talent strategy,” says Nick Woods, CIO at MAG (Airports Group). “From foundational courses in data fundamentals and network engineering to master’s degrees in data science and business administration, apprenticeships help us develop the skills we need for the future while reducing attrition and improving employee engagement.”

4. **Hire for enduring human skills, train for technical skills:** Increasingly, “softer” skills such as leadership, communication, problem-solving, and collaboration are seen as key success factors for tech teams (figure 2). While tech expertise will likely always be important, these non-technologically grounded capabilities contribute meaningfully to a tech-focused team—and they may be less likely to degrade over time. “What I am

willing to do is take a chance on technological skill, not take a chance on personal skills,” says Bechtel’s Patrick Noon. “I know from experience I can fix one a lot easier than I can fix the other.”

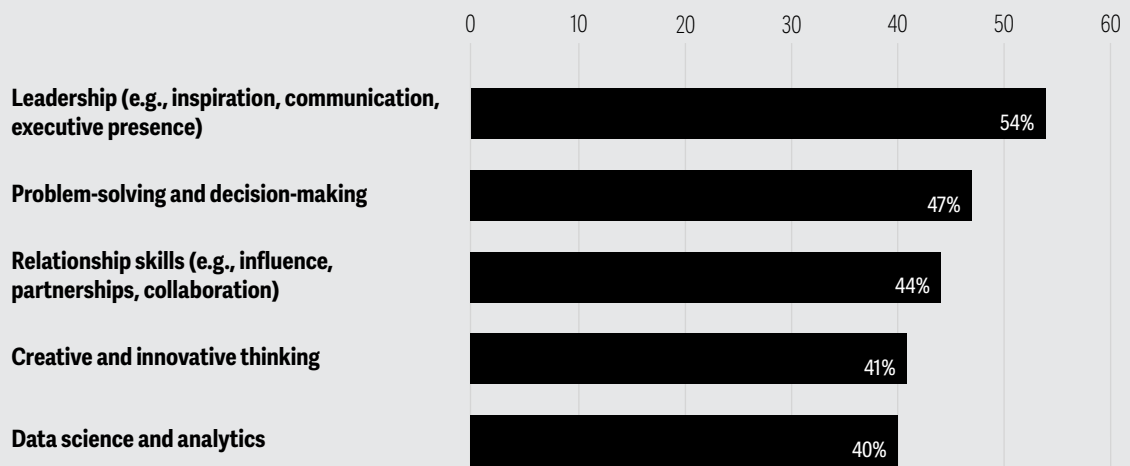
With technical skills becoming outdated every 2.5 years on average, hiring for current tech skills may not be a winning long-term strategy.¹⁵ Some tech specialists may continue to build their careers on digital depth and specificity, but increasingly, individuals should be evaluated on their ability to lead and be empathetic.

To develop softer, leadership skills with their teams, Ally launched the Ally Leadership program, an internal initiative that brings together 20 to 25 executives from across the organization. “We’ll say, ‘Here’s a problem we’re trying to solve to advance our technology strategy,’ and this cohort will solve for it in the next six weeks while also

Figure 2

Tech executives say nontechnical skills will be more critical to the success of their teams than tech expertise

What skills will be critical for your technology function in the next two years? Top five responses shown below.



Note: N=801; this is a multiselect question, so percentages will not add to 100.

Source: Deloitte 2023 Global Technology Leadership Study.

getting leadership training,” says Ally’s Sathish Muthukrishnan. “These leaders are solving organization-wide problems that they’re passionate about while improving their skills on a daily basis.”

“When engineers ask me what skills they should learn next, they think I’m going to say machine learning or cloud or something along those lines,” says Eli Lilly’s Diogo Rau. “But no. If you could focus on one thing, it’s the basics of empathy.”

Doing so may require a broader set of capabilities and skills that tech professionals have not always been encouraged to build. That’s changing. “We are in a very people-oriented business,” says Delta’s Rahul Samant. “If you want to succeed with us, you care about our customers and your colleagues and have a passion for the mission of connecting people. Balancing EQ-driven skills with technical skills is an imperative.”

- 5. Be intentional about how you address skills gaps:** When it comes to developing the most needed skills for their teams, tech leaders are often more inclined to hire talent with those critical skills or upskill existing talent, according to our study. They’re less likely to hire-to-train or leverage ecosystem partners—people who work for suppliers, competitors, partners, and other contiguous organizations—to fill skills gaps.

For instance, when it comes to cybersecurity and resilience, 31% of executives say they’ll hire talent with those skills and 30% say they’ll upskill existing teams. Only 16% say they’ll hire-to-train and 20% say they’ll look to ecosystem partners.

While no single approach is right or wrong, tech leaders should identify the skills gaps in their organization and then be thoughtful about how to address them.

“We can’t fill the talent gap just by hiring people from outside or using our consulting supplier partners,” says the former CIO of one financial services company. “We need to really grow talent from inside the organization, so we’ve created an internal academy that’s built on this principle of teaching and learning. Instead of bringing trainers in from the outside, we want our own experts to teach our own team members and share best practices.”

Ecosystem partners can provide a valuable, quick, and cost-effective way to “rent” talent and skills as capabilities are built in-house. In addition, tapping into ecosystems can give organizations a chance to recruit from more diverse and representative talent pools.

At the same time, executives should be careful not to outsource entirely to ecosystem partners, no matter how capable. “If we hire really smart engineers and put them on managing projects that are outsourced, I don’t think that’s a good use of anybody’s time,” explains Eli Lilly’s Diogo Rau. “We should have engineers do engineering work and let our partners do their work and not try to do stuff that’s in the middle. For the past 15 to 20 years, too many companies would probably say they have people who are spending too much time on vendor management.”

“We firmly believe that to deliver an excellent employee experience we can’t be dependent upon dozens of partners to deliver that experience,” says Marc Berson, SVP and CIO at Gilead Sciences. “So, we are focused on narrowing down to a smaller set of strategic partners. We learned lessons, as I’m sure many did during the pandemic, that there are certain elements of the employee experience over which we simply need to have more control.”

- 6. Focus on inclusion:** Our study as well as our ongoing research on diversity, equity, and inclusion (DEI)¹⁶ reveals that tech executives are faced with many competing priorities, and the area that’s often pushed to the bottom of the tech agenda is DEI initiatives. In fact, 30% say their tech function currently plays no role in driving DEI, and only 8% say that engaging a diverse workforce and building inclusive capabilities is an organizational priority. Tech leaders should give DEI the attention it deserves if they want to build an organization talent wants to follow.

Younger workers, especially in tech and other industries, increasingly value diversity and inclusion where they work.¹⁷ When looking at this cohort, Generation Z and millennials who are satisfied with their employers’ efforts to create a diverse and inclusive culture are more likely to want to stay with their employer for more than five years.

As a simple matter of attracting a broader range of people to your tech organization, strategies that include diversity and inclusion efforts are important to building a broader and deeper talent pipeline.

Such strategies can be basic—tech leaders could create employee resource and affinity groups focused on diverse communities, for example. Other key strategies could include greater investment in mentorship and apprenticeship programs, more outreach to ecosystem partners who are focused on building tech skills in underrepresented groups, and deliberate efforts to establish working groups to identify and outline how to best meet DEI goals.

“We set up our own DEI steering committee within the technology team,” says Jim Fowler, EVP and CTO at Nationwide. “It’s a team of about 12 associates that get together on a monthly basis, and they have three very clear goals: How do we attract, develop, and retain diverse talent in the tech field? We have also been doing something we call Catalyst for Change sessions. These are designed to be safe spaces for our associates and leaders to share concerns or provide a point of view. Leaders bring small communities together. It might come with an education component, but the real important part is it’s based in constructive conversations and solutions.”

“Building diverse teams should be a priority for every tech leader,” says Gilead Sciences’ Marc Berson. “To further increase the diversity of our organization, we’re rethinking our talent sourcing channels and approaches. We’re particularly focused on earlier career talent acquisition and development programs. These programs range from skills-first hiring, based on identifying roles where a four-year degree is not required, through to college interns and graduate hires, based on sourcing from colleges and universities with more diverse populations. In an effort to support these hires, we offer mentoring programs and first-year onboarding and assimilation support to enable integration into the organization. If we want to build better, stronger teams, we need to open up the aperture for where we find talent.”

While building more diverse teams is vital, it’s also important to prioritize inclusion. This requires building ways for people of all backgrounds and

experience levels to feel welcome and appreciated. “We’re focused on creating an environment to really ensure diversity and inclusion where people aren’t just equal in numbers or statistics in the company’s metrics, but rather they can really say what they think, be who they are and feel empowered to do their jobs,” says Antti Koskelin, SVP and CIO at KONE.

One way to help ensure inclusion becomes a priority is to establish a sense of accountability among leaders. “Inclusive leadership goals are included in every single one of our managers’ annual performance objectives,” says Mojgan Lefebvre, EVP and chief technology and operations officer at Travelers. “We hold our managers and our people leaders accountable.”

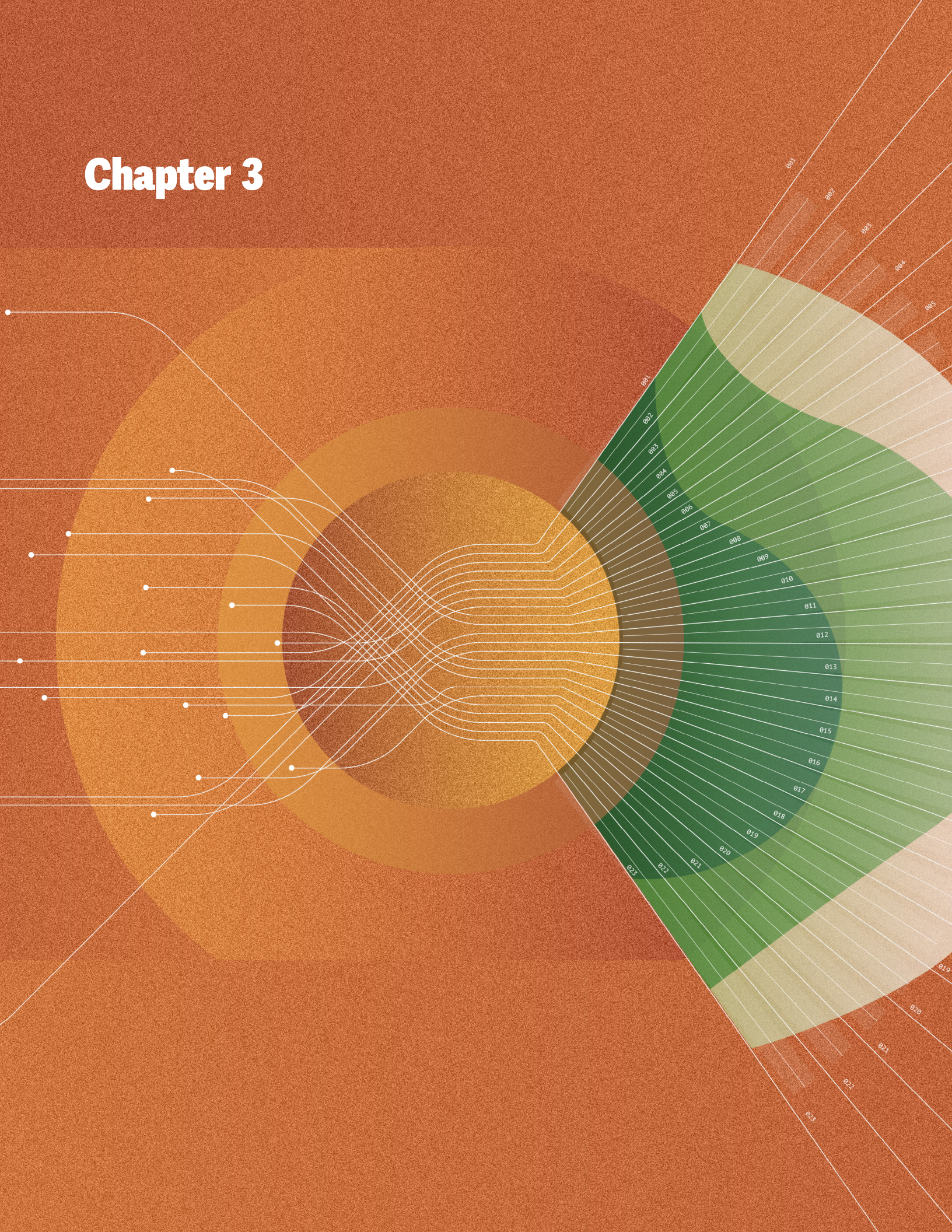
An ROI mindset for a successful tech talent strategy

One common denominator in our conversations with tech leaders is an awareness that talent is not just an input—it is an aspect that has potential to drive lasting value. The upfront investment of resources and time into recruiting, reskilling, retaining, promoting, and inspiring may seem taxing at times, but remember, it’s likely people who will transform your tech function, not the technology.

Consider the management of tech talent like any other tech investment—these are highly valuable people when they are empowered, prepared, and integrated. They may also require ongoing support and tending. This is likely to have a flywheel effect: When people know they’re part of a dynamic strategy to build a highly effective and impactful team, they may be more likely to stay, more likely to refer top people to the organization, more likely to stay focused, and more likely to bring fresh ideas to the table.

Successful tech leaders should therefore focus not only on talent but also on the broader context of work—how to make it purposeful, flexible, productive, and rewarding. Work in the tech space has often been different than in other spaces. But great leaders of tech teams should imagine how the future of work is taking shape, especially in the context of tech-focused teams. Having the right people is key. Giving them a sense of how they can work better and smarter is just as important.

Chapter 3





Monetizing data and technology can help unlock future growth—here’s how to take advantage of the opportunity

In part three of our findings, we share how companies are approaching data and tech monetization as well as strategies to help make these initiatives successful.

Organizations today are increasingly productizing their data and software to drive top-line growth and new revenue opportunities.

In fact, more than a third (36%) of executives surveyed in Deloitte’s [2023 Global Technology Leadership Study](#) say they’re currently generating revenue from selling data, technology, or tech-enabled services. Another 16% expect to in the next two years.

Successfully doing so will likely require substantive changes in the processes, practices, and operating models of enterprises, but it can be a worthwhile effort—and one that tech leaders should lead.

Just consider the opportunity surrounding data monetization, the process of converting data and analytics into financial returns. By 2020, the global market for data monetization reached US \$2.1 billion. By the end of this decade, the market is anticipated to surge to US \$15.5 billion—a compound annual growth rate of 22.1%.¹⁸

However, while many tech leaders see opportunities in monetizing data and technology, their environments and data capabilities are often rudimentary.

“The IT group finds themselves in a highly dynamic environment where the demand for difference and speed is higher than I can remember in my 30 years,” says a

European CIO of major global auto original equipment manufacturer. “It’s absolutely a revolution. Every single manufacturer is struggling; no one has managed to truly monetize their services. There is the thinking that there’s more out there that we can put value on, but we haven’t actually achieved it. It’s still just a vision.”

But it doesn’t have to be. Tech leaders have the opportunity (and responsibility) to help drive value for their organization—data and software monetization are key strategies to do just that.

This chapter shares how companies, both tech and non-tech, are currently approaching data and tech monetization, the challenges they often face in doing so, and strategies for how tech leaders can shepherd these efforts forward.

The state of play

Many technology leaders recognize the inherent opportunity in data. In Deloitte’s [2023 Global Technology Leadership Study](#), data and insights ranked among the top three tech capability areas organizations plan to focus on in the next two years.

“One focus for us is data and analytics,” says Sathish Muthukrishnan, Ally Financial’s chief information, data and digital officer. “It’s not about understanding data of external customers; it’s understanding data about

internal customers—how they’re working, how we can make them better, and how we can improve their lives. By stitching data across the company, you can ultimately understand the business of technology and become that ecosystem orchestrator.”

While some organizations are moving along their data journey, others may still not be ready or giving data the attention it deserves—by their own admission (figure 1).

Data management and analytics doesn’t even rank in the top five areas of where tech leaders currently spend the majority of their time, effort, and energy. It landed at no. 6 on the list behind business/digital strategy execution (no. 1); security, risk, and compliance (no. 2); business/digital strategy development (no. 3); innovation (no. 4); and operational reliability and delivery (no. 5). Why the lower ranking? It could be because the research also shows that there doesn’t seem to be clear consensus around who is responsible for data. Thirty-five percent of respondents said CIOs oversee data governance at their organizations; 34% said it’s a joint effort between business and tech leaders; 21% said their C-suite and tech leaders partner on these efforts; 8% say it’s driven by executives outside IT; and 2% said there was no clear ownership.

That’s not to say tech leaders aren’t investing in these areas. When asked which data and insights capabilities their organizations are actively investing in, the

three focus areas were advanced analytics (62%), data infrastructure modernization (60%) and foundational data management (59%); data monetization was at the bottom of the list (figure 2).

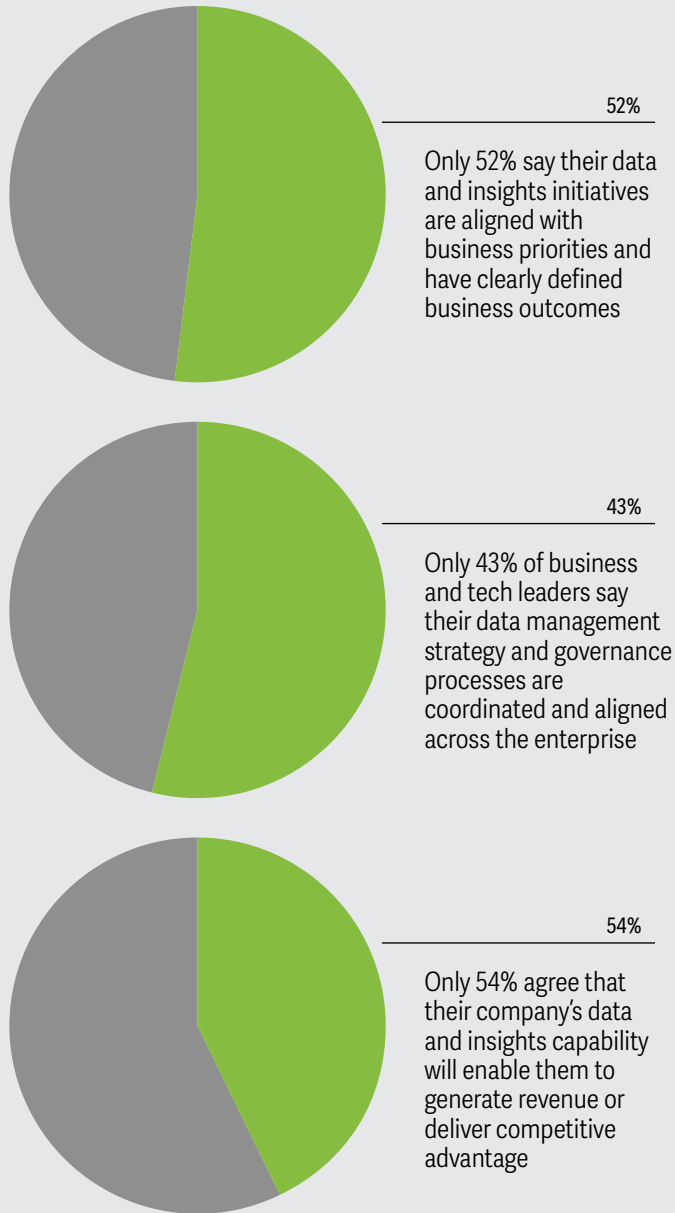
In a way, this makes sense—companies likely can’t begin monetizing their data if they don’t have quality data and strong data management practices in place.

“I am passionate about innovation and when I got here, I said that it’s no use talking about the future if we don’t have a strong data structure,” says Robert Nunes, chief technology and digital officer at retailer Portobello Shop. “First thing we did was create a program to review our systems architecture, our integrations, and our data from the consumer’s perspective. There was no recipe to follow. Different retailers need to do different things. But once we had a strategy around these elements, we could then think about cloud, digital transformation, and what’s next.”

“Our business is increasingly dependent on the insights coming from our data,” explains Pablo De la Puente Mora-Figueroa, CIO of Gestamp, a global automotive engineering company. “A key success factor in data and analytics is having a homogeneous and standardized set of systems, both transactional and informational. The more homogeneous, the faster you can get value from data.”

Figure 1

Tech leaders see opportunity in data and tech, but their environments and capabilities are often rudimentary



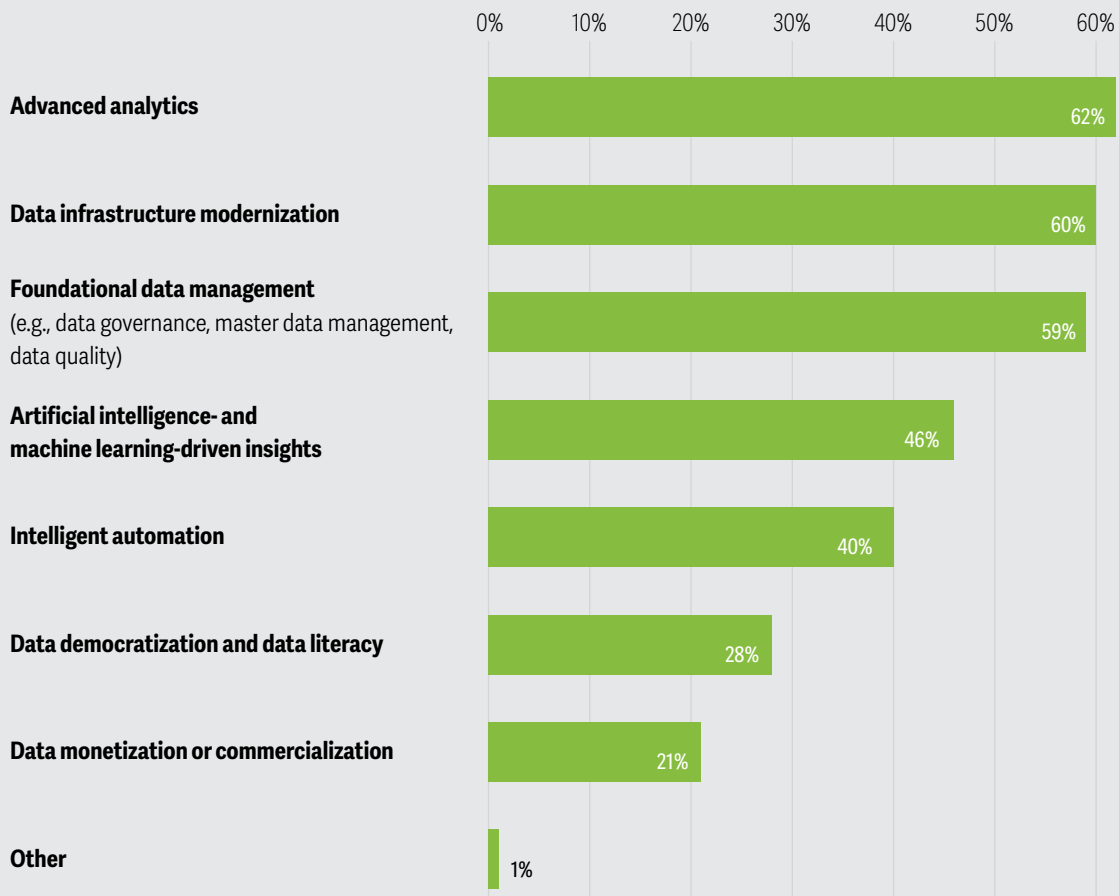
Note: N = 1,045.

Source: Deloitte 2023 Global Technology Leadership Study.

Figure 2

Organizations are currently more focused on building advanced analytics capabilities and modernizing their data infrastructure than monetization

What are the data and insights capability areas that your organization is actively investing in based on business priorities? Please select all that apply.



Note: N = 1,124.

Source: Deloitte 2023 Global Technology Leadership Study.

Even if organizations are still laying a foundational data infrastructure, tech leaders should still be thinking *now* about how to monetize their data in the *future*. Otherwise, it could be a missed opportunity.

To do so, executives should see the promise and value of data and prioritize it accordingly. Currently, less than

a third (31%) say harnessing data (Internet of Things, customer, operations, and public) to deliver insights and generate revenue is a top priority for their tech function. Yet, leveraging data and insights is, in part, what could allow organizations to fulfill their top priority, which, according to Deloitte's survey, is optimizing business processes for cost and efficiency.

“There is no digital transformation without organizational transformation,” says Elena Liria, managing director at Madrid Digital. “We need a good, solid data governance strategy to be able to know our citizens better and tailor our services.”

Four approaches to data monetization

Once companies have established strong data management and governance practices, they can consider monetizing their data. This transformation is not without its challenges, but the good news is many organizations, both tech and non-tech, already have data assets that can be monetized.

Some key data domains and types of data that organizations can use to drive internal value and external revenue generation include raw data, curated data, and third-party insights (figure 3).

So how do tech leaders do it? Here’s a look at four strategies companies across industries are using today to monetize their data—and the benefits they’re seeing as a result:

1. **Sell data sets:** One method of providing ongoing value through data monetization is by selling raw or curated data directly to customers as a one-off transaction, which may repeat over time as a discrete batch of business intelligence.

Flatiron Health, for instance, provides aggregated and deidentified patient electronic health record data to researchers for use in oncology research, clinical trials, and personalized medicine. By deriving data from diverse patient populations (Flatiron Health has more than 3.5 million patient records from more than 800 unique sites of care¹⁹), the organization is helping enable diversity in clinical trials.²⁰

2. **Sell insights:** Platform-as-a-Service (PaaS) models comprise another suite of technologies that allow companies to store, analyze, and share data with their customers through drillable, customizable reports.

One example of this is Mastercard’s efforts to provide market-based data to help a national department store understand its high-end

customers. The store used Mastercard’s Market Basket Analyzer to analyze data sets over time, thereby gaining stronger insights into shopper behavior. The tool includes signals that helped the retailer evaluate customer visits, and in the process uncover data on basket size and composition based on different shopper segmentations.

The Mastercard solution found that the average shopper who purchased from the new product line spent more than US\$400 per visit, with almost US\$300 of that total on a new luxury product. The tool also evaluated shoppers’ purchasing behavior before and after the new product line launch, further helping the department store understand trends, identify opportunities, and make data-driven decisions to optimize performance.²¹

3. **Embed data and insights into existing offerings:** Embedding curated data and insights into existing products is another method that technology leaders can champion to help generate additional revenue.

eBay, for instance, is using recent supply, demand, and pricing data for customers to identify how products and categories sell across all eBay marketplaces. Its proprietary Terapeak product research tool includes access to years of real-world sales data, offering insights into aspects like the number of listings and items sold, average sales prices, item conditions, sell-through rates, shipping costs, and availability of free shipping. In addition, Terapeak provides information on seller and buyer locations, sales trends over time, unsold inventory, and the listing formats preferred by sellers. By combing through data from millions of transactions, eBay is helping sellers make more informed decisions about listings.²²

4. **Sell to and through ecosystem partners:** Yet another way for tech leaders to explore data monetization is by selling data and insights through collaboration with a data aggregator or another similar partner that will in turn sell that data to third parties for commercial use.

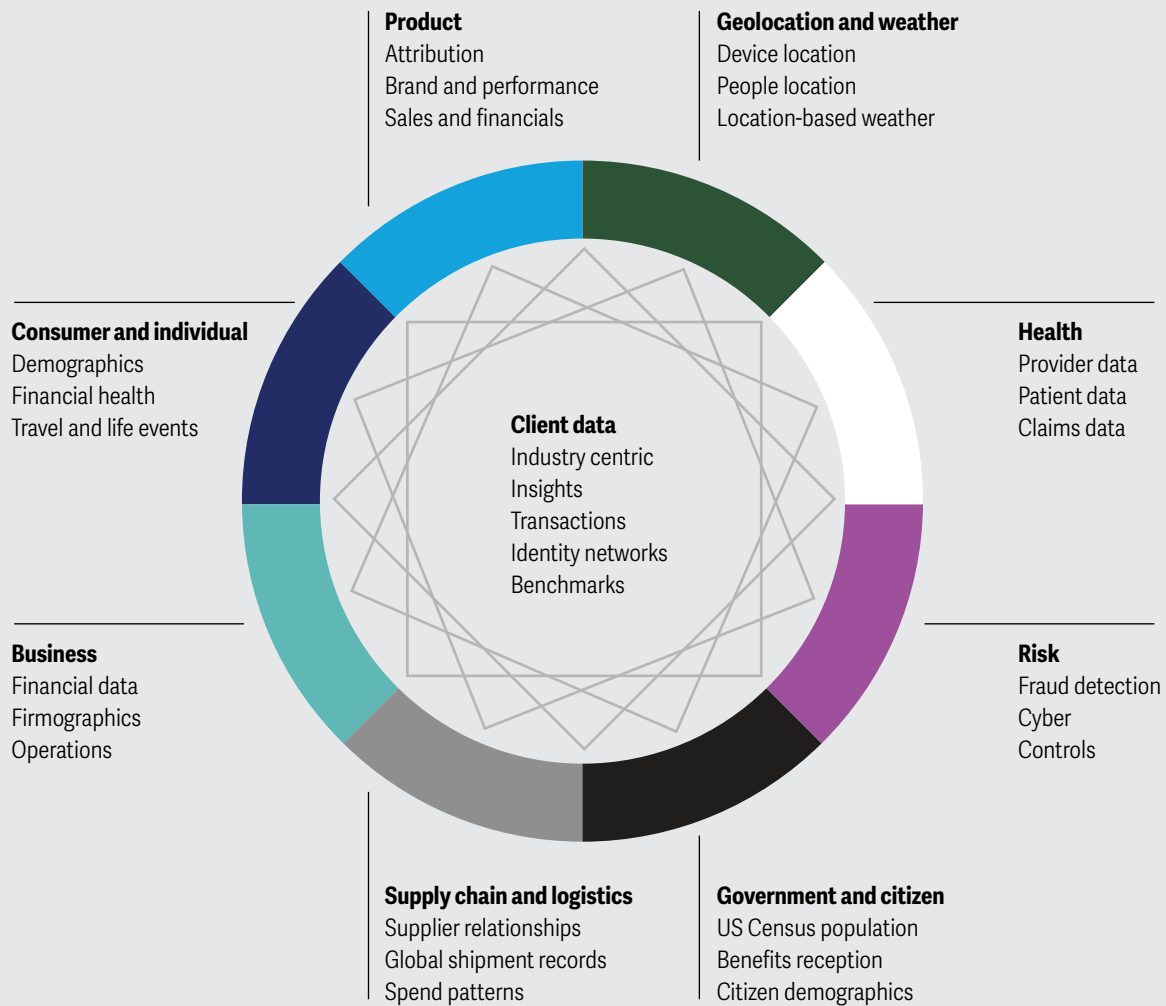
One example of this would be a company that collects real-time data from electric, connected, and autonomous vehicles and combines this data

with information from another company to create a robust view of road and mobility conditions, for instance. These millions of data points can then be shared with automakers, who in turn can use these insights to enhance vehicle safety and alleviate congestion on the road.

While the data monetization journey will vary by company, it's important to note that these approaches can work in conjunction with one another—and all should prioritize data privacy and protection. The regulatory environment around data sharing continues to evolve across the globe. Organizations should keep an eye on evolving trends that may govern the data sharing landscape. If in doubt, do not share or sell.

Figure 3

Companies across industries have a number of data assets that can be monetized—the key is to know how



Source: Monitor Deloitte.

Successful monetization may also require the democratization of data. Data should be easily accessible throughout the organization. This often calls for a coordinated interplay between data platforms, data culture, and data processes, as well as effective communication and collaboration among all data stakeholders, including tech and business leaders, data strategists, data owners, data scientists, and data stewards.

Monetizing tech to drive lasting value

Creating new products and services is the third largest organizational priority, according to the Deloitte survey. Another way tech leaders can deliver on this goal and drive value is by monetizing the very same software that is—or has—driven their business forward. Consider Lenovo for instance.

“In order to accelerate our commercialization journey, we initiated a corporate strategic program called ‘Lenovo Powers Lenovo’ where tech and business teams work together to validate, reshape, and put forward our proprietary products and solutions,” says Art Hu, senior vice president and global CIO at Lenovo. “One example of this journey is Lenovo xCloud, which is a hybrid cloud solution that helps customers build, migrate, utilize, and manage the cloud. It was originally a solution built by Lenovo’s IT team to use as an infrastructure platform internally, but it was such a success story that business teams often requested for it to be commercialized for customers. Once it became clear that xCloud could also help customers manage their complex cloud environments, product teams started working on a go-to-market and productization strategy for it.”

While xCloud has been a success for Lenovo, Hu acknowledges that commercializing tech does not come without obstacles. “One major challenge has been how to formulate a minimum viable product (MVP) that can be marketed effectively,” he explains. “When the tech team provides services to Lenovo internally, it’s generally focused on realizing business value with a whole set of functionalities. However, for a product to be marketable, there needs to be a standard product template that’s adaptable to different customer situations and flexible for configuration. For us, this was certainly a big challenge at the beginning, but by proactively reaching out to

customers and understanding their requirements, we’ve gradually developed an approach that works. One of the key success factors is to get rid of company-specific features and focus on replicable functionalities.”

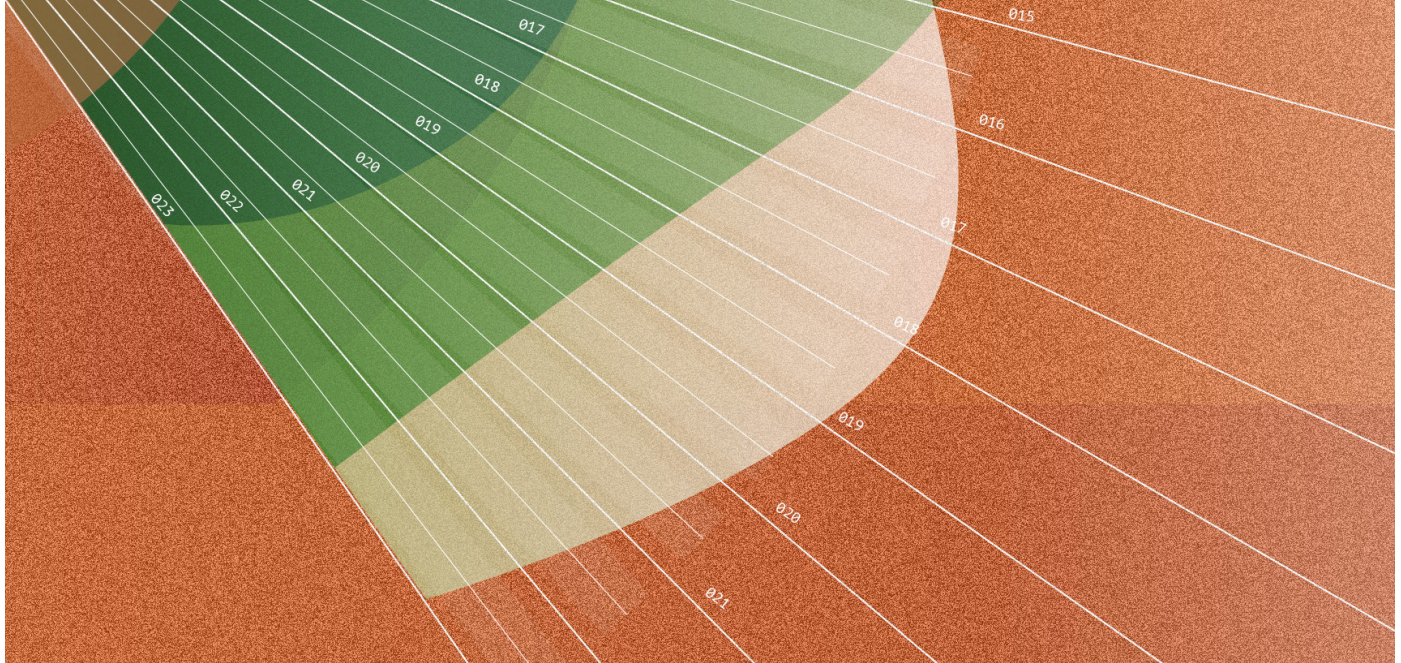
Commercializing their tech has led to several benefits. “The journey has contributed to a trusted and reliable partnership with our customers by bringing Lenovo’s validated solutions and experiences to help them succeed in digital transformation,” adds Hu. “It also helps internal tech teams learn about the market as well as our customers and inspires them to build more competitive offerings and services. Apart from a new business opportunity, commercializing has also been a catalyst for the tech team to transition from being more traditional back-office to a customer-oriented team. With two-way interactions around internal deployment and customer practices, it becomes a dual cycle to help both Lenovo and our customers grow capabilities in the long term.”

For Vanguard, software and data have also become true assets for the firm, ones that are driving new possibilities for strategic growth.

During a strategy meeting in Colorado, Vanguard’s leadership team uncovered that the next engine of growth for their organization was a global cloud-native platform that would allow them to roll out their low-cost financial advice both digitally and through Vanguard advisors. To build it, they created an internal startup comprised of people from their wealth management, investing, marketing, product, and technology teams—and intentionally placed the group under the direction of the CIO.

“Why the CIO? Because the differentiator here was the technology,” says John Marcante, former global CIO of Vanguard and US CIO-in-Residence at Deloitte. “We knew if the technology was done right, it would lead us to the goal we laid out. But more importantly, it would lead to additional areas of opportunity that we hadn’t even dreamt about yet—and that’s exactly what happened.”

Vanguard’s initial financial advice platform in the United States served as a catalyst to building additional advice capabilities both in the U.S. and across the globe. As use of the global cloud native platform grew, two things happened.



“We soon realized this platform was a source of data and insights on our investors’ preferences and behaviors,” explains Marcante. “Further, it offered value in helping us understand and maximize how advisors spend their time and add value to their clients. While we initially built these capabilities to better serve our own clients, we soon realized these same capabilities can be used by other organizations to serve theirs as well. It’s a trend I only see continuing. Software and data will increasingly drive the future of organizations and create new possibilities for growth.”

Lessons on monetizing data and technology

Unleashing a vision for monetizing data or technology can help organizations gain a competitive edge, and every leader in every industry can begin the journey. Here are a few strategies to consider as you’re getting started.

- **Start with a customer need and have a compelling value proposition:** This may sound rudimentary, but it is surprising to see how often monetization efforts either fail or don’t reach their full potential because they’re not led by the entire business. If these initiatives are only driven by the tech function, they can often become a systems exercise where IT merely grants access to data and adds analytics tools in the hopes that people will use them.

But monetization is like building any other product or service business. It should start with an unmet customer need in the market, have a compelling value proposition, and a viable business model.

Work to confirm that value proposition is unique. When it comes to data, for instance, organizations may talk themselves into thinking that their data is valuable simply because they have so much of it and it seems to address a customer need. But companies should spend sufficient time looking at the competitive landscape to help ensure they either don’t end up commercializing data or products/services that already exist in market (or can be easily copied by competitors) or target a need that is already well addressed.

“Don’t underestimate the amount of time, effort, and cost it takes to define and build a customer-ready offering for the market compared to an internal IT deployment,” recommends Lenovo’s Art Hu. “It’s not an easy journey to create a marketable product from an internal solution. It’s a long process requiring continuous dedication and investment, so persistence is a must. It’s also important to make sure you get in front of customers to test the value proposition. Only with their feedback, both good and bad, will you be able to iterate and move towards product-market fit.”

- **Prioritize your monetization efforts based on an accurate evaluation of options:** Since many organizations have monetization opportunities, leaders should have an established framework for accurately assessing each opportunity. Otherwise, they could struggle with prioritization and capital allocation. Deloitte Germany’s Artificial Intelligence and Data Valuation (AIVA) Framework²³ is one possible tool to kickstart the data valuation journey. It is designed

to not only accurately assess the value of an organization's data assets, but it also includes an operating and governance model as well as a repository of industry-specific use cases to accelerate value delivery.

"As a company, it can help to take a portfolio view of the various ideas you have for commercialization," explains Hu. "Due to the inherent uncertainty, not all ideas and features will convert into commercially viable ideas, but it's important not to get discouraged."

- **Pick a monetization leader with technical chops:** When asked who in their organization is primarily responsible for the commercialization of tech-enabled assets, respondents in Deloitte's *Global Technology Leadership Study* primarily said the CIO (46%); the same response was noted for data monetization (38%).

Tech leaders often lead or co-lead these monetization initiatives because it's ultimately technology underpinning the success of these efforts. But it's not just CIOs who can lead the charge. It could be the chief data officer, a business executive with data and insights experience or a commercial leader who is tech-savvy. What matters is that this leader has a deep understanding of tech and doesn't see these efforts in terms of how much they cost but rather how much value they can bring.

"The technology org at Ally is no longer a cost center, and I don't think of it that way," says Ally Financial's Sathish Muthukrishnan. "I think of technology either as a value generator or a revenue generator and how what we do connects to that is more critical than anything else."

- **Build a cross-functional team that can think big and align on a cohesive strategy:** While monetization efforts need a key leader, they're ultimately a team sport. Driving direct or indirect revenue through data and tech is shared—and so is the responsibility for seeing it done well. For monetization efforts to be successful, the whole organization should define and align to a common understanding and cohesive strategy. That can mean a joint effort of the board, chief data officer, CIO, CFO, and business function

leader—people who understand where data and tech capabilities are mature and ready for prime-time, and who are sensitive not only to the business opportunity but also to feasibility and potential obstacles.

"The advice I have for other tech leaders is to break out of the 1970s data processing mindset. Mainframes and green screens are long gone, but 50-year-old organizational structures that relegated technology and those building-sized mainframes to the basement live on," says Diogo Rau, EVP and chief information and digital officer at Eli Lilly and Company. "Spend your time with the rest of the C-suite and board on the big ideas that will change not just your company, but the industry as a whole. Data will always be a shared responsibility. Even though we have a chief analytics officer, that doesn't mean that everything that's data-related all has to roll up to one person."

This cross-functional team should be able to think big. It can be very easy to use data, analytics and technology for tactical or operational purposes, but the real value of monetization is envisioning and driving bold ideas. This requires courage and a willingness to explore uncharted territory.

"The things that are really going to propel an organization forward require courage," says Brian Lucotch, president of enGen, a subsidiary of Highmark Health. "Being courageous—that's what's really going to propel change at the end of the day."

- **Think of your organization as the first customer, not the only customer:** Your data or technology may have applications beyond what your team has even envisioned. To see those possibilities, leaders may need to shift their mindset around who their customers are or could be.

"We think of Ally as the first customer, not the only customer," says the organization's chief information, data and digital officer Sathish Muthukrishnan. "After we [leverage our tech] to drive efficiencies internally, we white-label our software services to other businesses to generate revenue—balancing these two creates immense value from technology."

- **Don't confine yourself to the industry you're in:** Just because you're a financial services company, for instance, doesn't mean your technology (and/or data) can't serve beyond that sector.

One financial services company we interviewed, for example, no longer views itself as just a provider of retail financing—it considers itself to be a platform business, one that can (and does) provide services to other brands. The company has architected its business and technology so that anyone within its ecosystem can incorporate the capabilities it has built into their own systems. Whether it be payment or insurance capabilities, this company is helping improve other organizations—and benefitting as a result.

- **Create robust oversight and feedback loops:** Other reasons monetization efforts could fail is because they take too long, are costly and sometimes feel like science experiments. One way to overcome these roadblocks is to have a robust decision structure that defines success measures and allows for quick decision making.

One large manufacturing company we interviewed for the research held a weekly stand-up meeting while developing software that would commercialize their services. These sessions included both business and technology stakeholders and the single purpose of these meetings was to remove obstacles for the execution team. It paid off. The company was able to reduce the development time from an average of three years to 9 months, ultimately giving them significant competitive advantage.

- **Consider the many facets of monetization:** Successful monetization brings in new revenue, yes, but there are many other facets to monetization to consider. It's not just about the hard numbers and the bottom line. Successful monetization can also mean increased resilience and even an eye into the future.

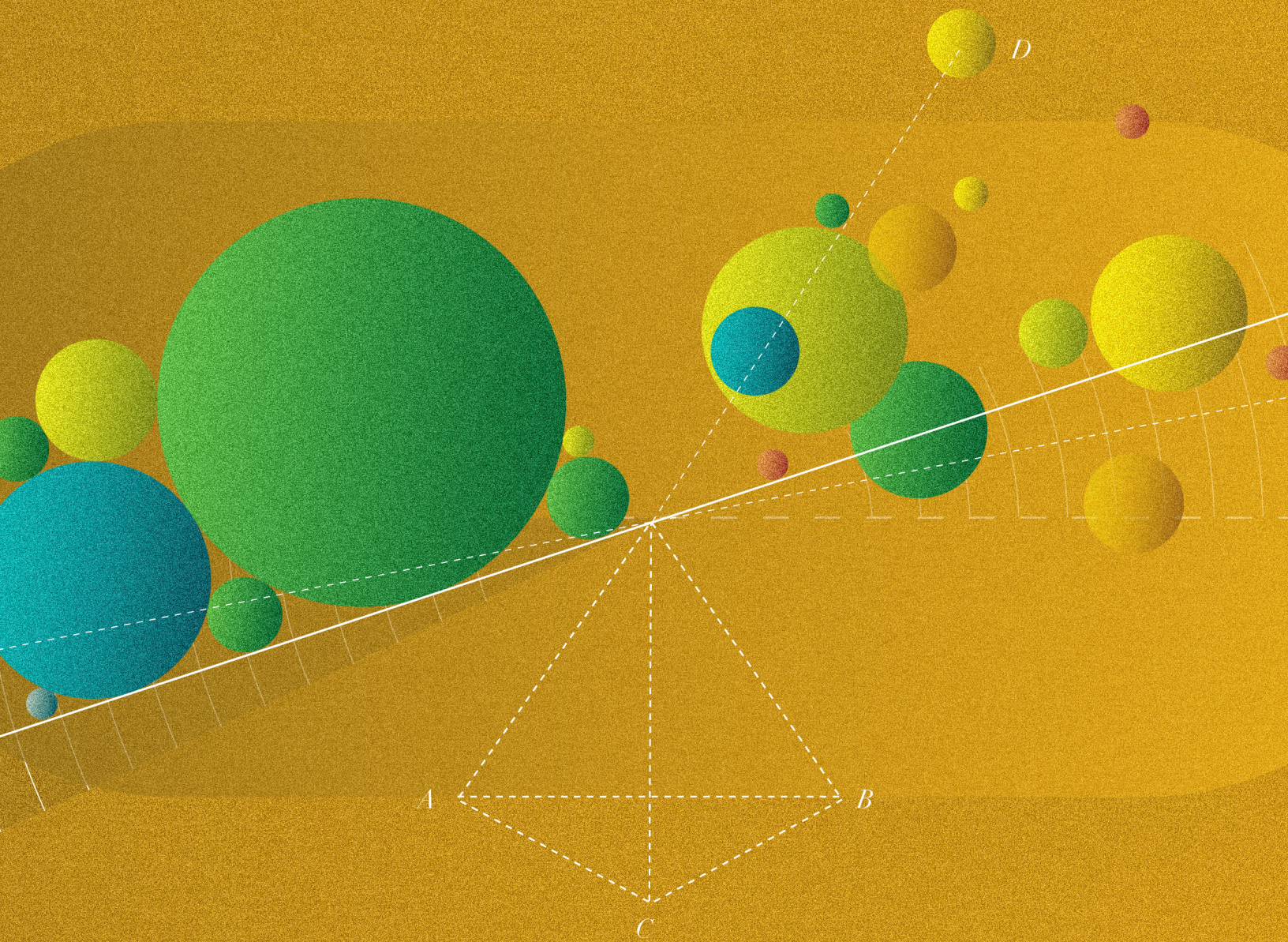
Consider that one organization, for instance, leveraged data to predict future disruption. “When the pandemic struck, my data science team got to work on creating predictive models with our data,” says a former executive at a large multinational food industry company. “We were able to foretell the closure of a certain factory almost to the exact day in early April 2020.” Having such detailed insights into the operational resilience of your organization—and being able to mitigate disruption ahead of time—can help prevent losses.

Unlocking the untapped value of data and technology is an urgent need for many organizations to stay competitive. But monetization shouldn't be viewed as a one-time project. It's a journey that requires ongoing investment, regular maintenance and continuous improvement. These efforts require a bold vision and a long-term commitment.

When done right, it can pay off. By monetizing data and technology, businesses can position themselves at the forefront of their industries, create new revenue opportunities and catalyze growth. The path to realizing the true value of data and tech lies ahead, waiting for those bold enough to embark on this transformative journey.

The opportunity is clear. The question is, will you embrace it?

Chapter 4



From tech investment to impact: Strategies for allocating capital and articulating value

In part four of our findings, we share how companies are approaching their tech budgets and ways to measure and articulate the value of these investments.

Technology no longer powers business; it is the business—and tech investments are significantly increasing as a result.

According to Deloitte’s *2023 Global Technology Leadership Study*, the average tech budget as a percentage of revenue is 5.49%, up from 4.25% in 2020.

“The tech function is critical in driving the future of our organization since it’s the tech function achieving the majority of our strategic goals,” says Johanne Duhaime, executive vice president (EVP) of technology and projects at Desjardins. “I want to position the tech function more as a strategic advisor and partner that brings value and helps ensure our company is moving in the right direction.”

Compared to our previous global technology leadership studies, there is significant variability in tech spending among the companies we surveyed. It’s clear that some organizations understand technology can either make or break their organization and are investing aggressively as a result.

Yet it may not be enough to merely make investments and execute on a strategy. Tech leaders should also measure and articulate the value of their investments to their C-suite peers, their teams, and the board. But tech leaders often struggle to do just that. In fact, six in 10 executives surveyed by Deloitte say it’s difficult to quantify the benefits of individual tech investments.

As a result, tech spending is often perceived as overly complex and too costly, which can lead to more tech budget scrutiny.

In this chapter, we highlight how enterprises are investing in tech, as well as share strategies for measuring and articulating the impact of these investments.

How tech investments are evolving across industries

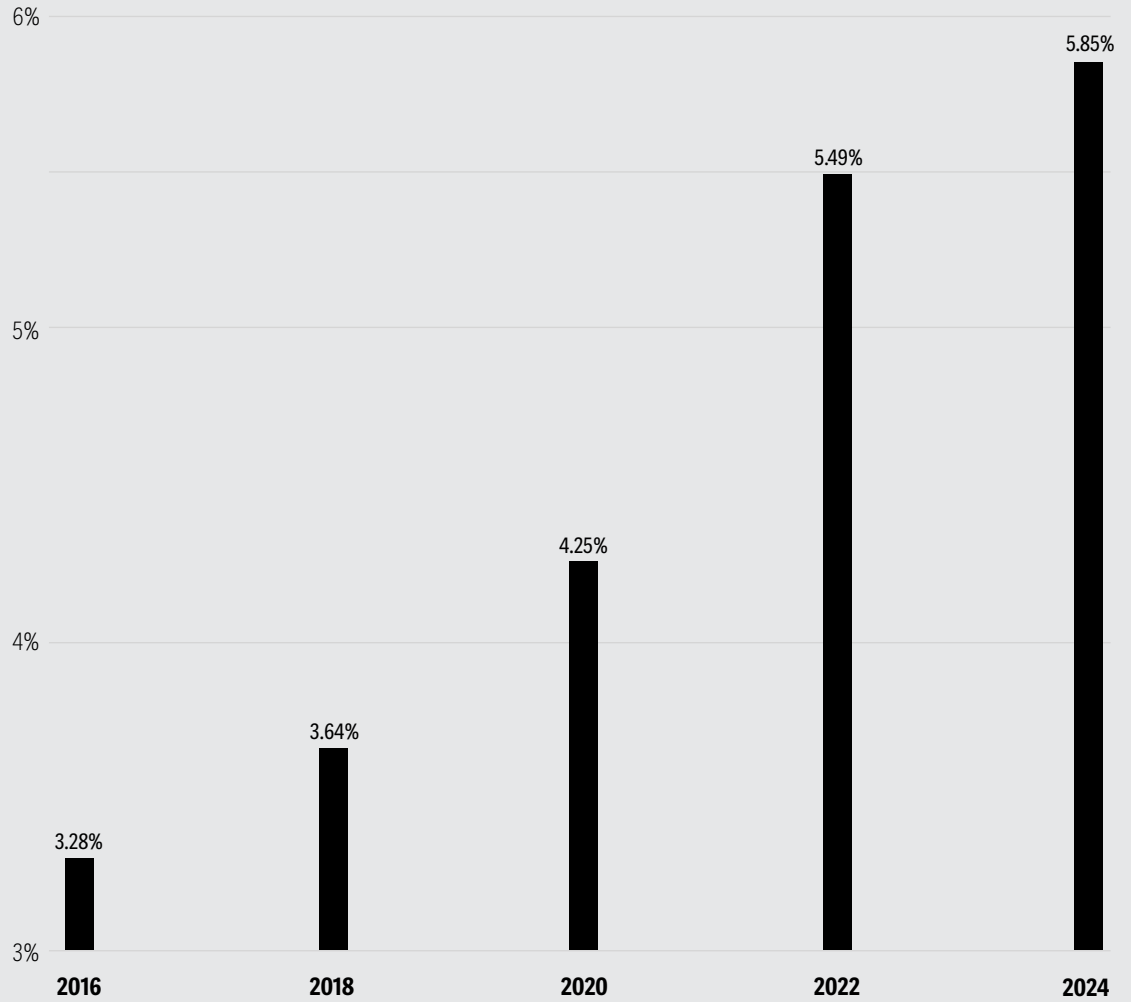
Tech spending as a percentage of revenue averaged out at 3.28% in 2016²⁴ and 3.64% in 2018.²⁵ By 2020, right before COVID-19 hit, that number increased to 4.25%²⁶ and grew even further to 5.49% in 2022, according to Deloitte’s Global Technology Leadership Study (figure 1). Based on interviews with tech leaders, macroeconomic projections, and a breakdown of industry-specific trends in tech spending, we anticipate that by 2024, that percentage will increase again to 5.85%.

The 2022 increase is nearly universal across industries (figure 2). Financial services, insurance, and health care were the industries with slight declines since 2020. This trend may be attributable to the significant investments these sectors made in tech over the past couple of years that are now leveling out as well as the current global economic conditions that may be forcing some companies to reconsider their investment strategy.



Figure 1

Technology budgets have increased since 2018, and we expect this trend to continue into 2024



Note: N = various. The 2016, 2018, and 2020 percentages were calculated by measuring average tech budget as a percentage of revenue. The 2022 value was calculated by multiplying the average percent of tech budget controlled by the tech function (61%) by the average overall tech budget (9%). The 2024 percentage is our projection.

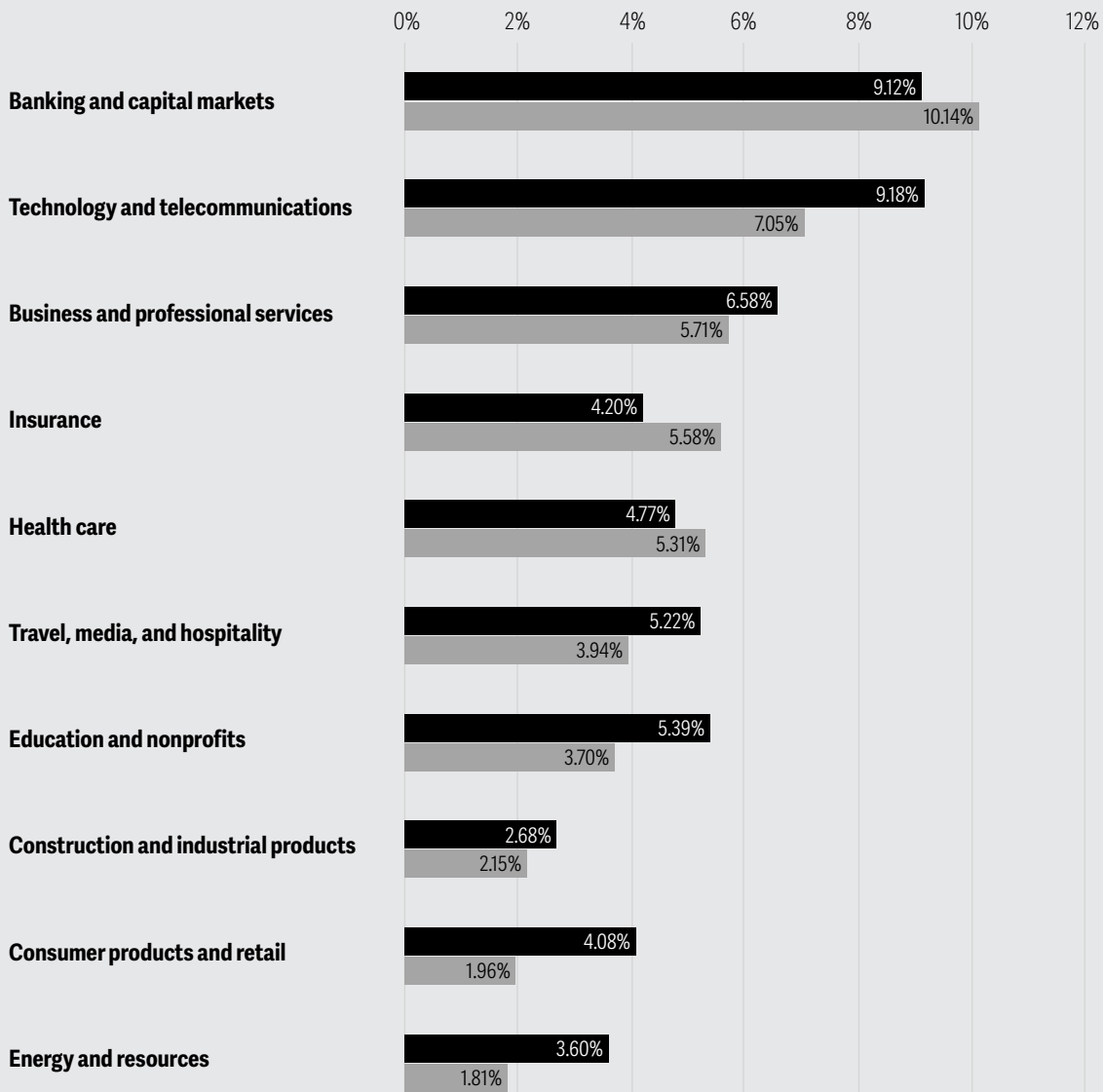
Source: Deloitte Global Technology Leadership Study, 2016–2023.

Figure 2

Technology budgets are on the rise across most industries

What is your organization's technology investment as a percentage of revenue?

● 2022 ● 2020



Note: N = various. The 2020 percentages were calculated by measuring average tech budget as a percentage of revenue and the 2022 percentages were calculated by multiplying each industry's average tech budget as a percentage of revenue by each industry's average percent of tech budget controlled by the tech function.

Source: Deloitte Global Technology Leadership Study, 2020 and 2023.

Eager for a larger tech budget? Consider making it your priority to start generating revenue through tech. Our survey finds that organizations currently generating revenue from selling data, technology, or tech-enabled services have bigger tech budgets than those that are not—8.54% vs. 3.66%.

“Technology is essential to the future of our organization,” says Pieter Halenbeek, CIO at the Dutch Chamber of Commerce. “As such, our tech function spend has increased from 30% to over 40% of the total [organizational] budget.”

What’s contributing to these tech budget increases? A number of factors.

During the pandemic, especially during 2020, companies didn’t know what the fallout might be and started pulling back their tech budgets. Starting in 2021 and leading up to today, there have been significantly higher investments in part because of both pent-up demand for technologies, such as collaboration tools as companies shifted to hybrid and remote working models, as well as a desire to not be left behind. As it became clear that technology would transform every industry, many tech leaders realized they should shift their budgets accordingly.

Another reason for this continued increase in tech budgets is the expansion and dispersion of technology leadership roles. For example, along with the CIO, many organizations now have CTOs (51%), chief digital officers (25%), and chief data officers (27%), all of whom drive distinct initiatives fueled by technology.²⁷

In addition, we see the percentage of tech budget controlled by business and functional leaders increasing substantially from about 20% in our 2020 Global Technology Leadership Study to around 40% in 2022, ultimately increasing the infrastructure and the capabilities that may be required to support these investments. We expect this trend to continue and anticipate that almost half of tech investments could be managed outside of the tech function by 2024.

Looking toward the future, tech budgets are expected to continue growing, but likely not at the rate seen in 2022 when there was a significant demand for technology, like generative AI, along with heightened optimism around what new tools and platforms could bring.²⁸

Given the possible economic headwinds ahead,²⁹ select sectors may reduce their tech investment, but overall, as we mentioned earlier, we expect to see a modest increase in tech budgets across industries—and anticipate the average spend on technology as a percentage of revenue will increase to 5.85% by 2024.

How tech leaders allocate their tech budgets

When it comes to budget allocations, our study shows that surveyed tech leaders are primarily focused on optimizing existing business capabilities (48%). About another third of tech budgets goes toward augmenting existing capabilities with new capabilities, and a fifth goes toward creating new value-generating business models or entering new markets (figure 3). There is remarkable consistency across industries and company sizes in terms of these allocations.

We do see differences when we compare companies that are currently generating revenue through tech versus those that are not. Here, there’s a delineation. Organizations that are monetizing their data or technology—36% of companies today with an additional 16% predicted to monetize in the next two years—are more future-focused. Almost one quarter of their budget goes toward creating new value-generating business models or entering new markets (figure 4).

When we asked which areas of technology investment have had the most significant impact on their organization, the top four responses among respondents were cybersecurity and risk mitigation (54%), core modernization and legacy application renewal (52%), shift to cloud (49%), and analytics and data science (45%) (figure 5).

Organizations appear to be primarily focused on building a strong tech foundation, but the next few years could demand investments in more strategic areas, such as AI and core engineering capabilities, which create net new opportunities for the business.

Despite a recent surge in AI-related news,³⁰ only 18% of respondents say this technology has had a significant impact on their organization so far. This may be because companies have not yet realized the full impact of their new AI capabilities or they haven’t yet had the resources to deploy the technology. Additionally, since our survey was fielded in the fall of 2022, AI, particularly generative AI, wasn’t yet on companies’ radar. This is quickly changing.

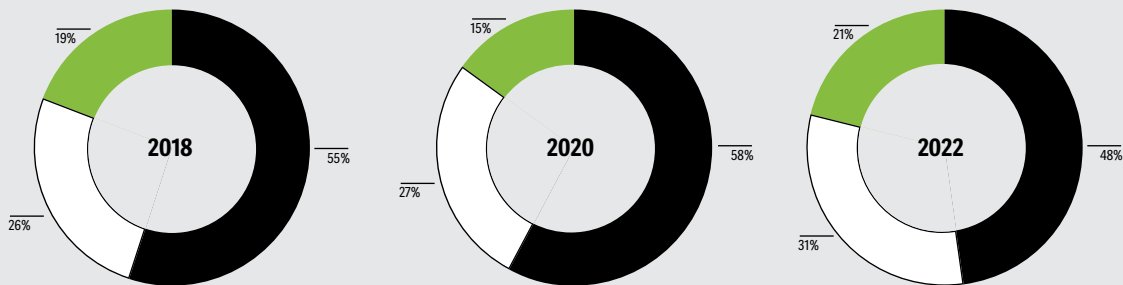
“In the next 10 years, the real valuation gap is not going to be between tech and traditional companies,” says Mike Walsh, CEO of Tomorrow. “It’s going to be between companies leveraging AI and those that are

Figure 3

When it comes to budget allocations, tech leaders today are primarily focused on optimizing existing business capabilities

How is your technology function's budget allocated today across the following three areas?

- Optimizing existing business capabilities
- Augmenting existing capabilities with new capabilities
- Creating new value-generating business models or entering new markets



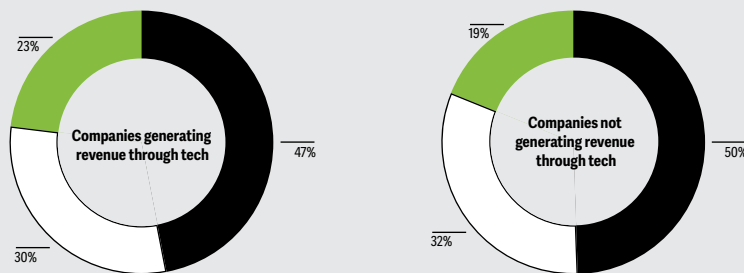
Note: N = various. Showing overall responses across the years.
Source: Deloitte Global Technology Leadership Study, 2018–2023.

Figure 4

Organizations generating revenue through tech are allocating more budget toward creating new value-generating business models than optimizing or augmenting existing capabilities

How is your technology function's budget allocated today across the following three areas?

- Optimizing existing business capabilities
- Augmenting existing capabilities with new capabilities
- Creating new value-generating business models or entering new markets

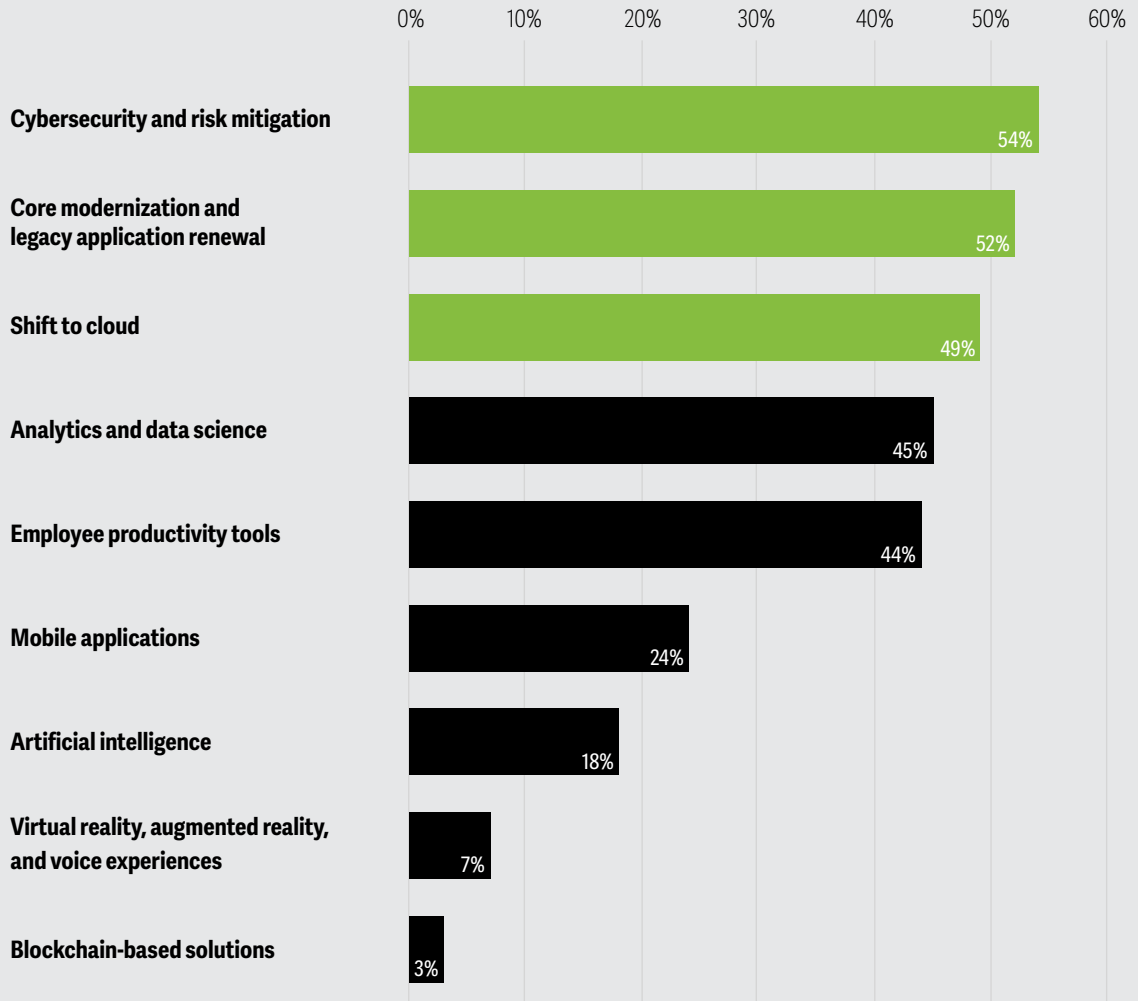


Note: N = various. May not add to 100% due to rounding.
Source: Deloitte 2023 Global Technology Leadership Study.

Figure 5

Cybersecurity, core modernization, and cloud are cited as organizations' most impactful investments

Which areas of technology investment have had the most significant impact on your organization over the past two years? Please select the top three.



Note: N = 762. This is a multiselect question so percentages will not add up to 100%.
Source: Deloitte 2023 Global Technology Leadership Study.

not. There will be winners and losers based on those that have used these technologies to redefine their value delivery models.”

Regardless of focus areas, it's clear: As budgets increase, it's expected that the amount of oversight and scrutiny on investment strategy will increase as well. Tech leaders should intentionally measure and articulate the value of their investments. The next section helps illustrate how.

Challenges with measuring and articulating tech value—and five strategies to help overcome them

Increased tech spending doesn't necessarily translate into more value. If anything, it can emphasize the need for tech leaders to consistently measure and articulate the impact of their investments, especially to the board. In fact, according to our research, almost half say technology project performance metrics and the impact of tech programs are key discussion topics in the boardroom.

Yet it can be challenging to measure and articulate value. The majority of executives we surveyed (61%) say the biggest challenge with measuring technology's impact is quantifying the softer, less tangible benefits (figure 6).

The metric our respondents most commonly leverage to report on the value and impact of the tech function is return on investment (ROI). It may be considered a crude measure of value, yet 67% of respondents rely on it, even though it doesn't always measure or reflect the long-term impact tech investments could have. About a quarter of respondents use net present value (NPV), which does take into account time, although there may be projects and initiatives that may not have a quantifiable value associated with it, such as building capacity or expanding core technology capabilities. These initiatives may be necessary but may not have an ROI.

Not every investment will have a solid, immediate return, so tech leaders should have a spectrum of measures depending on the type of investment. These could include customer impact, agility, or another competitive advantage technology can unleash.

“We think of value in how we can be innovative, not just in how much we spend,” says Diogo Rau, EVP and chief

information and digital officer at Eli Lilly and Company. “One example is machine learning for drug discovery. It's not a big financial spend in the grand scheme of things, but in terms of the innovation we're getting from our smartest minds and engineers, it's a ton.”

When thinking about impact, tech leaders can first refer to the five competencies of transformational tech leadership—engineer, architect, data scientist, change agent, owner—which highlight the areas executives can drive distinct value.³¹ While measuring and articulating that value will vary from company to company, here are five ways tech leaders can consider approaching it.

1. **Burn your current tech strategy.** Gone are the days of the tech function working in silos, every so often checking in with the C-suite. Today, tech leaders should ensure that their tech investment strategy aligns with, and furthers, their overall enterprise strategy. Tech can have a road map in service of the business strategy but should not have a standalone strategy.

In fact, without this collaboration, money could be left on the table. According to recent Deloitte analysis, the right combination of digital transformation actions can unlock as much as US\$1.25 trillion in additional market capitalization across all Fortune 500 companies. But the wrong combinations can put more than US\$1.5 trillion at risk.³²

“My advice for new tech leaders would be to make the technology strategy a joint strategy for the company and the business,” says Sathish Muthukrishnan, chief information, data, and digital officer at Ally Financial. “When our strategy was developed, I sat with the business leaders, my peers, and my own team to get their input on the relevance of the strategy to their business. In every presentation, I ensure I am articulating the progress and value the technology strategy is having on our business and our end customers.”

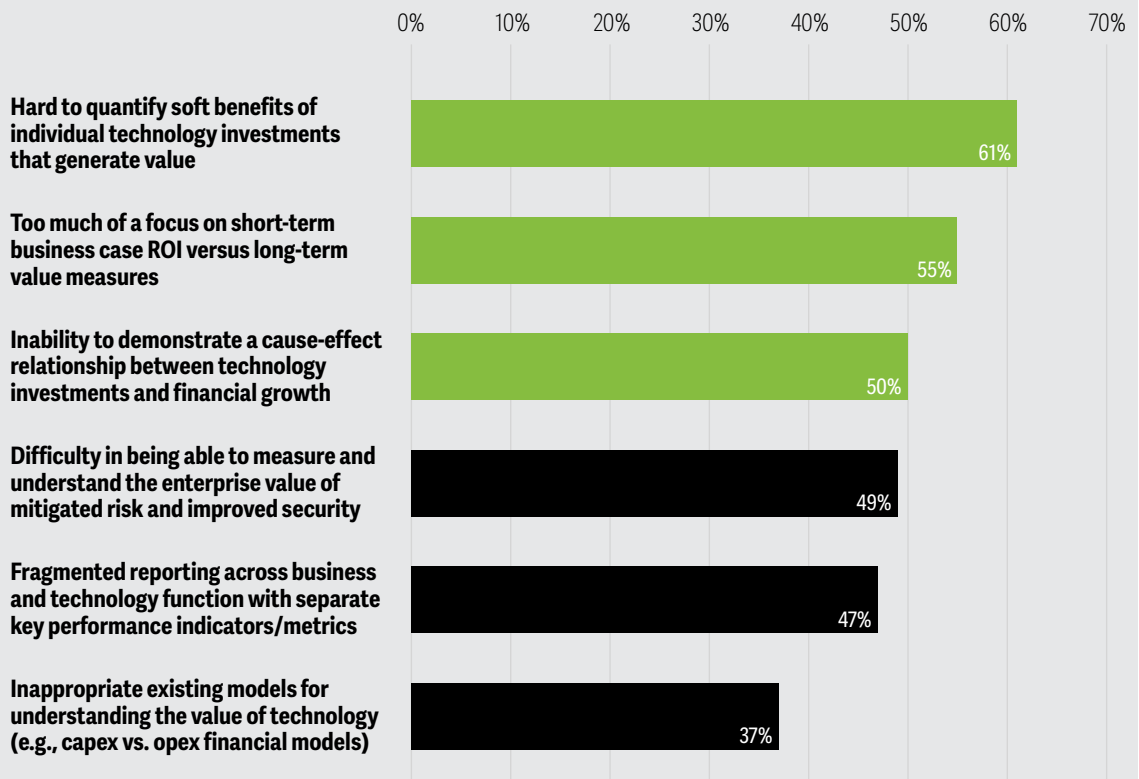
To proactively work with business leaders and drive overall business strategy, tech leaders should consider the following three dimensions:³³

- **Enabling transformations:** The strategic possibilities created by tech-enabled transformation.

Figure 6

Quantifying the soft benefits of tech investments is the biggest challenge with measuring technology's impact

What are the top challenges CxOs face when assessing and understanding the return on investment (ROI) derived from technology investments? Please select the top three.



Note: N = 401. This is a multiselect question so percentages will not add up to 100%.
Source: Deloitte 2023 Global Technology Leadership Study.

Examples include new capabilities, new markets, and new products—essentially, terms that describe efforts to enable a larger strategy, sometimes spanning multiple business units.

- **Building road maps:** The technologies that come with digital transformation. When we say, “aligned to strategy,” we mean these technologies can be harnessed to achieve some discrete goal and bring the strategy to life.

- **Managing change:** The organization’s ability to adapt to and adopt new processes, resources, and ways of working. It often refers to the more qualitative, human characteristics necessary for a transformation, encapsulating a multitude of talent domains.

To ensure their investments support the overall business, Marc Berson, CIO of Gilead Sciences, says his company created an innovation fund, ultimately

changing the governance structure around their digital transformation prioritization setting. “Now, we work cross-functionally to collectively determine our investment priorities, and the tech organization moderates that process.”

2. **Strike a balance between qualitative and quantitative measures.** Measuring value is not always quantitative. Tech investments can make people more efficient and better at their jobs, eliminating simple tasks and creating time to work on higher-value projects. With increased tech investment, employees and leaders can use their specialized skills to add value.³⁴

“If people are reaching out to me to help solve their problems, that’s a good thing because I’m being trusted,” says Jennifer Krolikowski, former CIO for the Space Systems Command. “Although it can be hard to prove value because my tech investments often translate to efficiencies in people—and that is not easily quantified. Sometimes there is skepticism around giving me budget because they can’t see the ROI. But it’s because they’re looking for a tech ROI and therefore miss the people ROI.”

When it comes to quantitative measures, it can be beneficial to look at this through the following three lenses: how effectively tech supports business strategy, growth, and outcomes; how value is delivered to key stakeholders; and how effectively the tech solutions can deliver the products and services that the business needs.

3. **Build an “agile” funding process.** According to our study, organizations are, on average, dedicating 25% of their budgets to agile initiatives, yet their budgeting approaches and processes may be anything but that.

Today, tech leaders should approach budgeting differently. Rather than reviewing budgeting once a year, it should happen on a more frequent basis—and it should be value-driven rather than project-driven. Tech leaders shouldn’t commit to a set of assumptions and activities that may or may not come true every six months. Instead, budgeting should be viewed as an adaptive process that could inevitably change.

Taking a more agile approach to budgeting requires an efficient decision structure to reprioritize and

reallocate funding as needed. While this may require more time from both business and tech leaders, it will likely be minimal and ultimately allow for a much more efficient use of capital.

Take generative AI, for example. The speed at which this technology is transforming has left many organizations with traditional budgeting process at a competitive disadvantage. Yet those with a more agile approach may have been more equipped to take advantage of the opportunity at hand.

4. **Never present costs without the impact.** Tech leaders should also pivot from how they’ve traditionally communicated the tech team’s role and impact. The tech function isn’t a cost center; it’s a value generator. Tech leaders should work with other executives to define how to measure value and business outcomes upfront during the budget planning phase so that when it comes time to present to stakeholders, there is already a level of preparation. Converting the business case into tangible and intangible outcomes is important when communicating value.

“We’ve been on this journey of a support function monitored primarily on cost and how quickly we could come down the curve,” says the former CIO of a large manufacturing company. “Yet every dollar in the tech organization needs to be thought of as an investment, not just as a cost that you’re managing. It’s an investment that drives returns. A big pivot for us has been talking about value in everything we do—and not just talking about it, but measuring it, quantifying it, and demonstrating that we delivered it.”

Jonathan Askins, CTO for the State of Arkansas, has a similar mindset, explaining that while projects often sound expensive, it’s key to not only look at the hard numbers. Instead, executives should find a way to communicate what an investment can bring, even if it can’t be perfectly quantified.

“I would love to put value on some of the things that we do and say this is worth US\$2,000,000. I know it only cost us US\$200,000 to build it, but it’s worth US\$2,000,000,” says Askins. “Where I find out very quickly if we are not performing is if the costs exceed what [our agencies] feel like

is the value that they're getting. Conversely, if people call and say, 'hey this cost isn't as bad as I thought,' then we have an early indicator that we're providing the value we should be providing."

Accountability sits with the executives impacted by the outcome of the tech strategy. And this also includes the board, who should sign off on desired outcomes upfront and provide inputs during delivery. Often, these expectations may need to be reset due to execution challenges, but they should still be done collaboratively. Joint ownership can be key for success.

5. **Recognize that measuring impact is as much an art as a science.** Not every company is the same and how your C-suite peers expect to see value may vary. First, tech leaders should develop a point of view on what value can be delivered by each tech investment. Then, stakeholders should be asked what they want to see out of each investment. What might they consider a success? Knowing this upfront can help tech leaders plan and determine a good path forward.

For Gilead Sciences, showing impact is as much an art as a science and people-focused metrics are just as important as those around IT. "We publish a monthly dashboard which shows detailed metrics for IT transformation-initiative performance and operational security and reliability," says Gilead's Marc Berson. "In addition, we look at how we are doing with our organizational health and culture, including employee engagement, skills growth, and development. While looking at these metrics is helpful, it may seem transactional if we don't balance it with a strong, parallel focus on people."

"At Chevron, our IT and digital investments are tightly integrated with the targets set by each of our businesses and how they measure value," says CIO Bill Braun. "With that, we're reaching a level of maturity where we no longer try to carve out discrete value from the 'digital' elements of the work. We've teamed to blur the lines between business and IT, so we fully understand priorities and the value we're after as we pursue our enterprise objective of

safely delivering higher returns and lower carbon." Given the market volatility, uncertainty, and complexity, along with the pace of innovation, tech leaders should do scenario planning to review various options with executives and make a collective decision on which scenario to move forward with. This is a way to gain alignment on key business, operational, and technology priorities; explore leading practices; pressure test and confirm the resiliency of the tech strategy based on different scenarios; and orient leadership toward expected financial and operational outcomes.

Managing the tech portfolio

As we've stated, the bigger your tech budget gets, the more scrutiny you'll likely have—from your fellow tech leaders, the C-suite, and the board. With this increased scrutiny should come the need to no longer look at your tech budget as a cost, but as a strategic investment and benefit for the business.

It may be useful to, instead of seeing yourself as a tech leader, see yourself as a portfolio manager who operates in the same manner as a venture capitalist.³⁵ In this new light, you can think critically about both the investments you want to make in the short term, and those you may need to make long term to reap a competitive edge. With this strategy comes some risk, but also the potential for a large reward.

As a portfolio manager, your budget could become more than an annual task to check off the list. Instead, it could become a dynamic, living strategy that is updated quarterly or even monthly.

No matter what strategies you decide to deploy for your organization, consider: Great tech leaders often take a value-driven approach to their budgets and tech investment strategy. And they do so from the start. Measuring and communicating impact shouldn't be an afterthought; it should be a primary focus and goal.

Appendix



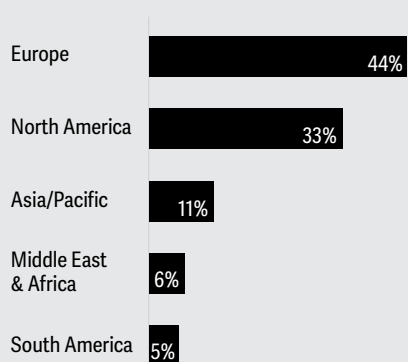
Research methodology

Figure 1

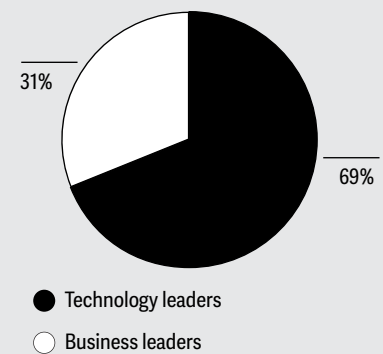
Global Technology Leadership Study demographics

Overview	
Survey participants	1,179
Interviews conducted	100
Countries represented	42

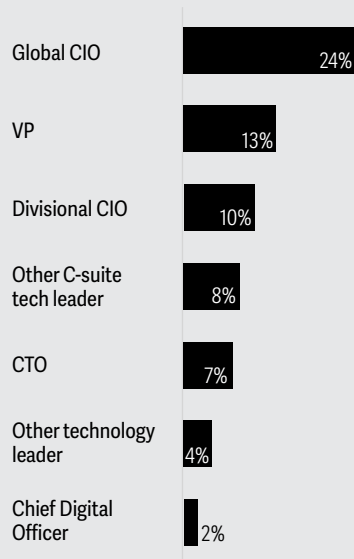
Survey geography



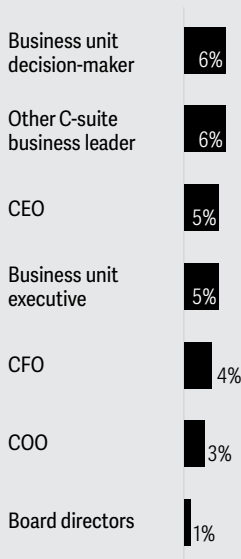
Role of survey participants



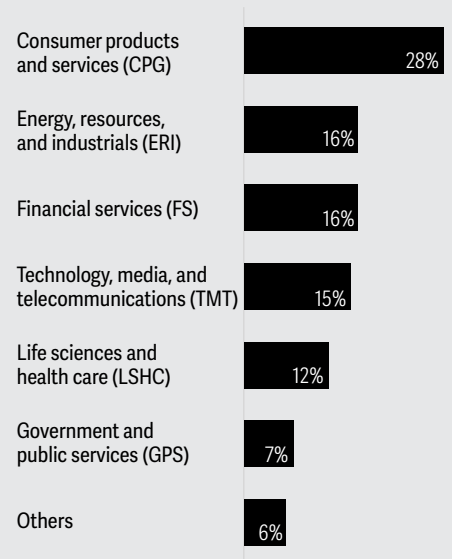
Technology leaders' title breakdown



Business leaders' title breakdown



Industry



Note: Percentages may not total 100% due to rounding.
Source: Deloitte 2023 Global Technology Leadership Study.

An industry look

A glimpse at notable differences across the following industries: consumer products and services (CPG); energy, resources, and industrials (ERI); financial services (FS); life sciences and health care (LSHC); government and public services (GPS); and technology, media, and telecommunications (TMT).

Figure 2

Top organizational priorities

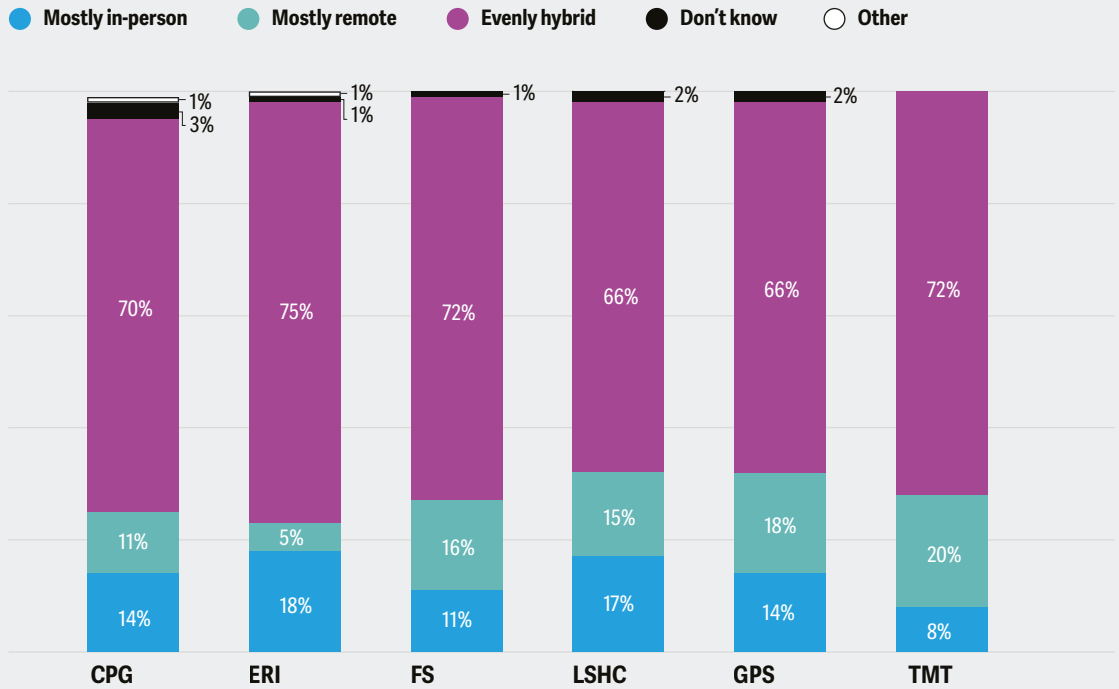
	Priority 1	Priority 2	Priority 3
CPG	Attracting, retaining, and engaging end customers 53%	Driving operational business performance 50%	Expanding into new markets, segments, or geographies 49%
ERI	Creating new products and services 42%	Driving operational business performance 42%	Expanding into new markets, segments, or geographies 41%
FS	Attracting, retaining, and engaging end customers 57%	Expanding into new markets, segments, or geographies 42%	Driving operational business performance 38%
LSHC	Expanding into new markets, segments, or geographies 52%	Attracting, retaining, and engaging end customers 46%	Creating new products and services 44%
GPS	Creating new products and services 52%	Strengthening security, privacy, and resilience capabilities 40%	Attracting, retaining, and engaging end customers 35%
TMT	Attracting, retaining, and engaging end customers 57%	Expanding into new markets, segments, or geographies 48%	Creating new products and services 47%

Note: The sample sizes across industries were CPG (N = 327), ERI (N = 185), FS (N = 192), LSHC (N = 147), GPS (N = 85), and TMT (N = 174).

Source: Deloitte 2023 Global Technology Leadership Study.

Figure 3

Future workplace models

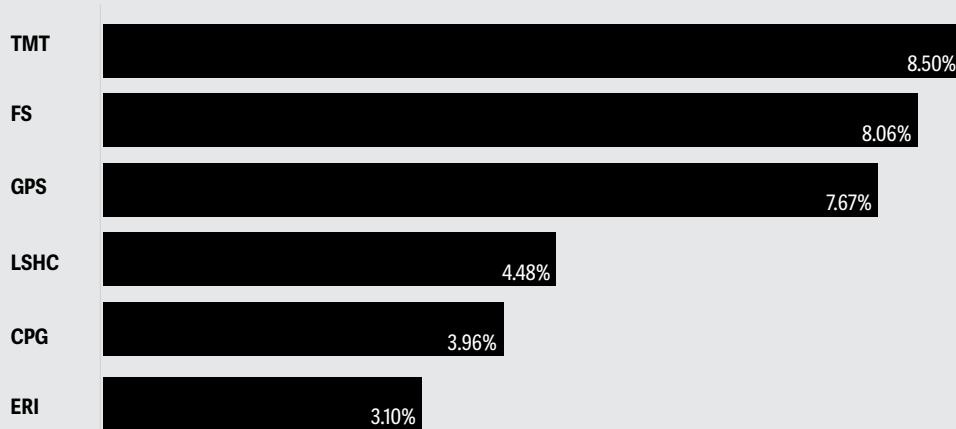


Note: The sample sizes across industries were CPG (N = 327), ERI (N = 185), FS (N = 192), LSHC (N = 147), GPS (N = 85), and TMT (N = 174). Percentages may not total 100% due to rounding.

Source: Deloitte 2023 Global Technology Leadership Study.

Figure 4

Tech investment as a percentage of revenue

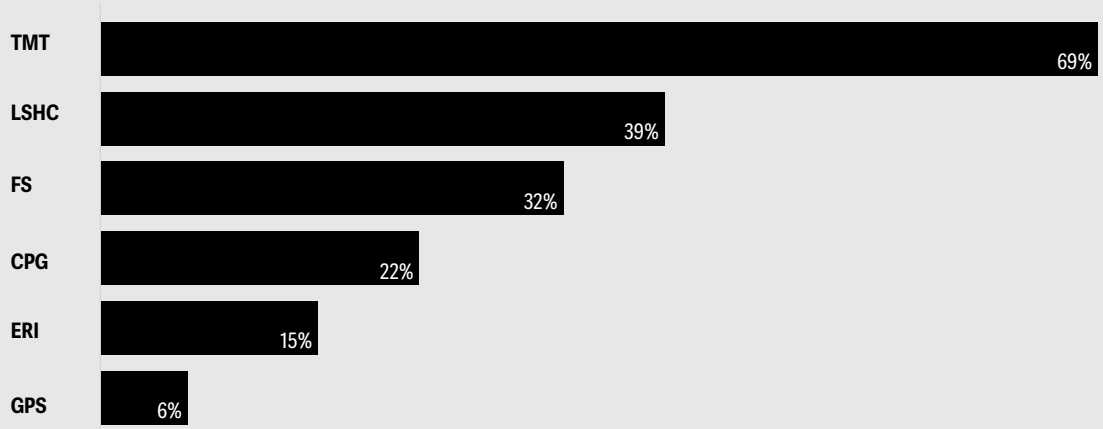


Note: The sample sizes across industries were CPG (N = 327), ERI (N = 185), FS (N = 192), LSHC (N = 147), GPS (N = 85), and TMT (N = 174).

Source: Deloitte 2023 Global Technology Leadership Study.

Figure 5

Average business revenue from selling data, technology, or tech-enabled services, by industry



Note: The sample sizes across industries were CPG (N = 327), ERI (N = 185), FS (N = 192), LSHC (N = 147), GPS (N = 85), and TMT (N = 174).

Source: Deloitte 2023 Global Technology Leadership Study.

Figure 6

Top three most impactful tech investments in the past two years

	Highest impact	Second-highest impact	Third-highest impact
CPG	Shift to cloud 54%	Core modernization and legacy application renewal 53%	Cybersecurity and risk mitigation 51%
ERI	Cybersecurity and risk mitigation 61%	Core modernization and legacy application renewal 54%	Analytics and data science 48%
FS	Cybersecurity and risk mitigation 59%	Core modernization and legacy application renewal 57%	Analytics and data science 46%
LSHC	Analytics and data science 54%	Employee productivity tools 50%	Cybersecurity and risk mitigation 43%
GPS	Shift to cloud 69%	Cybersecurity and risk mitigation 64%	Core modernization and legacy application renewal 53%
TMT	Shift to cloud 59%	Core modernization and legacy application renewal 47%	Analytics and data science 46%

Note: The sample sizes across industries were CPG (N = 327), ERI (N = 185), FS (N = 192), LSHC (N = 147), GPS (N = 85), and TMT (N = 174).

Deloitte 2023 Global Technology Leadership Study.

A regional perspective

A glimpse at notable differences across Asia/Pacific, Europe, Middle East & Africa, North America, and South America.

Figure 7

Top tech function priorities

	Priority 1	Priority 2	Priority 3
Asia/Pacific	Transform customer experience 44%	Improve cybersecurity and business resilience, and regulatory compliance capabilities 43%	Optimize business operations and processes for cost and efficiency 42%
Europe	Optimize business operations and processes for cost and efficiency 61%	Modernize legacy/core systems for agility and scale 53%	Improve cybersecurity and business resilience, and regulatory compliance capabilities 48%
Middle East & Africa	Transform customer experience 56%	Improve cybersecurity and business resilience, and regulatory compliance capabilities 47%	Modernize legacy/core systems for agility and scale 46%
North America	Modernize legacy/core systems for agility and scale 47%	Enable business growth (expansion into new markets, segments, or geographies) 45%	Optimize business operations and processes for cost and efficiency 45%
South America	Optimize business operations and processes for cost and efficiency 72%	Transform customer experience 55%	Modernize legacy/core systems for agility and scale 51%

Note: The sample sizes across regions were Asia/Pacific (N = 135), Europe (N = 523), Middle East & Africa (N = 68), North America (N = 394), and South America (N = 53).

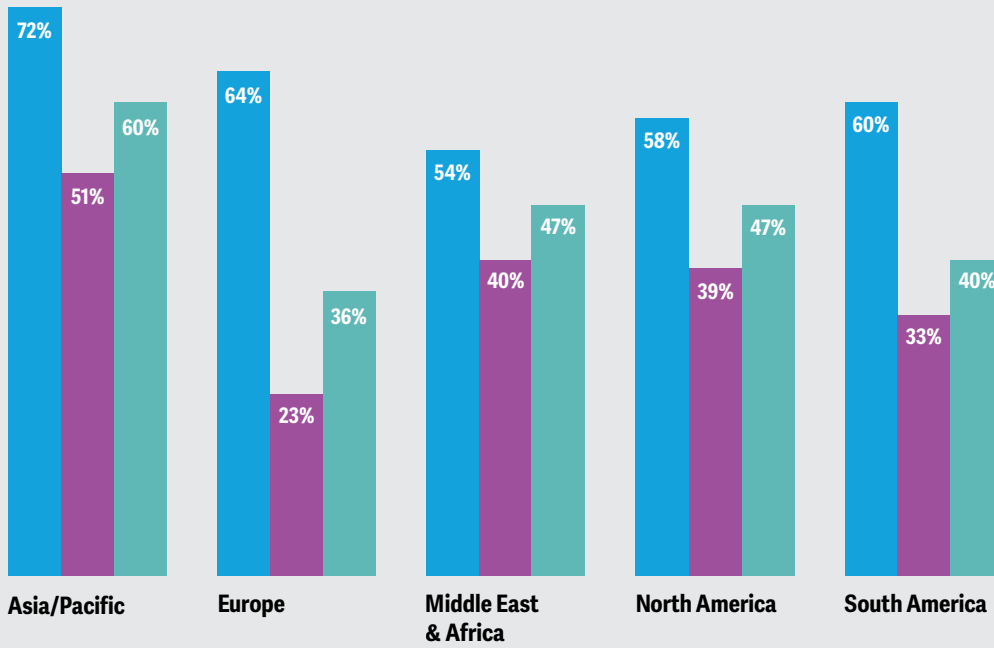
Source: Deloitte 2023 Global Technology Leadership Study.

Figure 8

Perspectives on the board

Percentage of respondents who agree with the following statements.

- Our management and corporate board are in complete sync on technology
- Our board has a formal subcommittee focused on technology
- Our board is primarily focused on technology issues related to cybersecurity, audit, and compliance



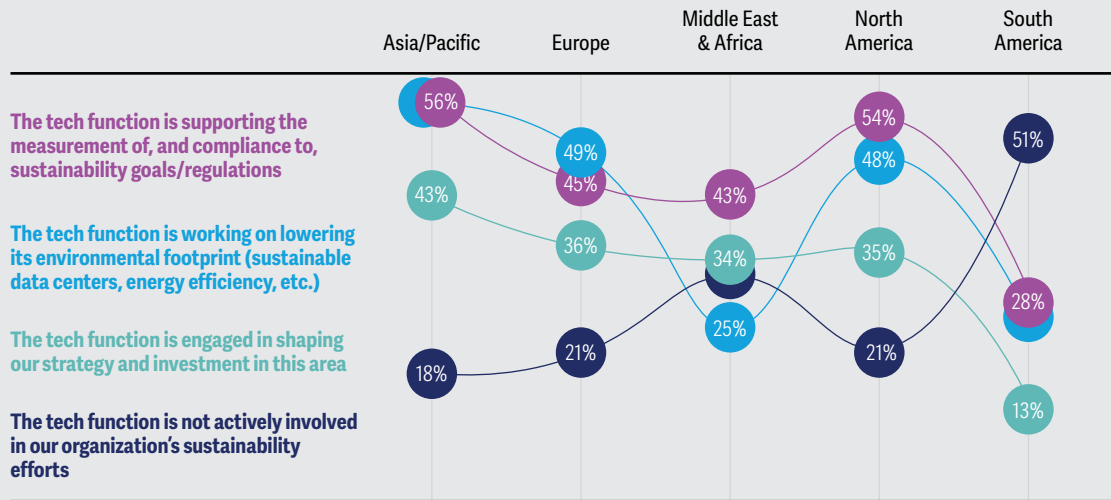
Note: The sample sizes across regions were Asia-Pacific (N = 135), Europe (N = 523), Middle East & Africa (N = 68), North America (N = 394), and South America (N = 53).

Source: Deloitte 2023 Global Technology Leadership Study.

Figure 9

Tech's role in driving sustainability

How is your tech function supporting your organization's environmental and sustainability goals?
Select all that apply.



Note: The sample sizes across regions were Asia/Pacific (N = 135), Europe (N = 523), Middle East & Africa (N = 68), North America (N = 394), and South America (N = 53).

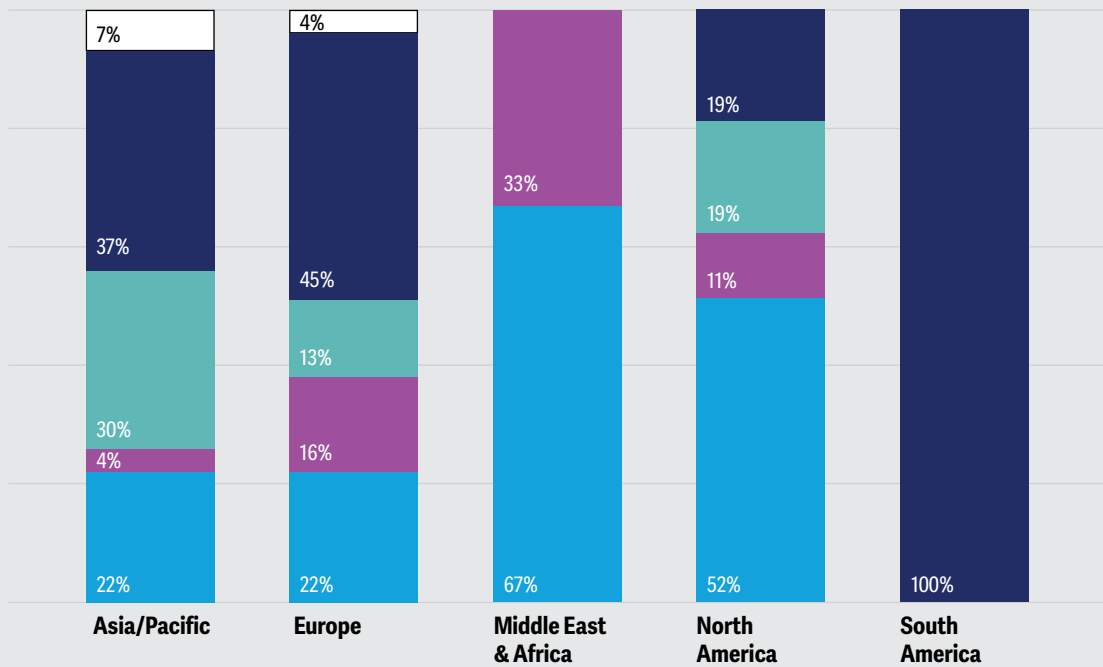
Source: Deloitte 2023 Global Technology Leadership Study.

Figure 10

Addressing skills gaps

What is your primary method for developing emerging technology expertise (AI, quantum, AR/VR, etc.) within the tech function?

- Hire talent with the needed skills
- Hire to train for the needed skills
- Upskill existing talent
- Use talent/skills from ecosystem partners and/or service providers
- Other/don't know yet

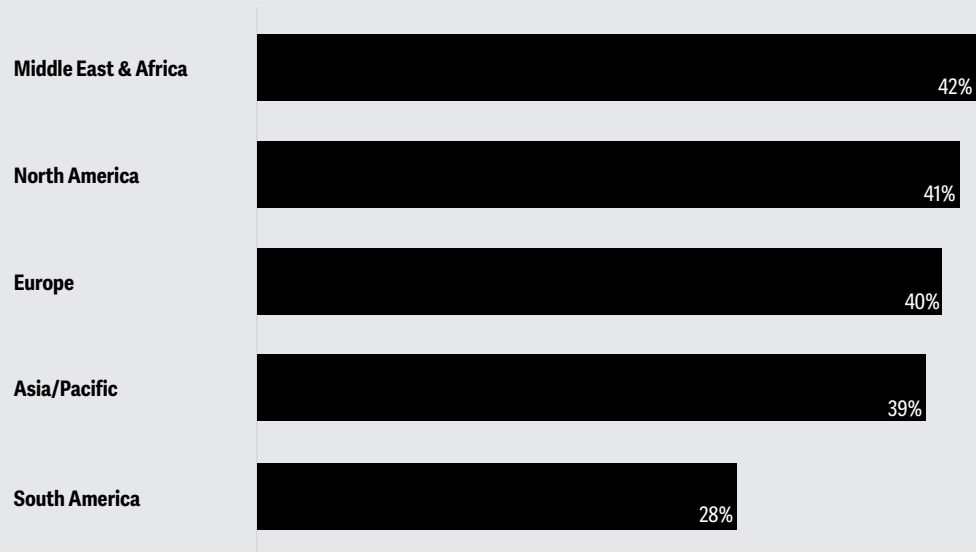


Note: The sample sizes across regions were Asia/Pacific (N = 135), Europe (N = 523), Middle East & Africa (N = 68), North America (N = 394), and South America (N = 53).

Source: Deloitte 2023 Global Technology Leadership Study.

Figure 11

Average business revenue from selling data, technology, or tech-enabled services, by region



Note: The sample sizes across regions were Asia/Pacific (N = 135), Europe (N = 523), Middle East & Africa (N = 68), North America (N = 394), and South America (N = 53).

Source: Deloitte 2023 Global Technology Leadership Study.

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