ZS

2025 outlook:
Life sciences leaders on data, digital and AI

By Mahmood Majeed and Jessica Jarvis

93%

71%

40%

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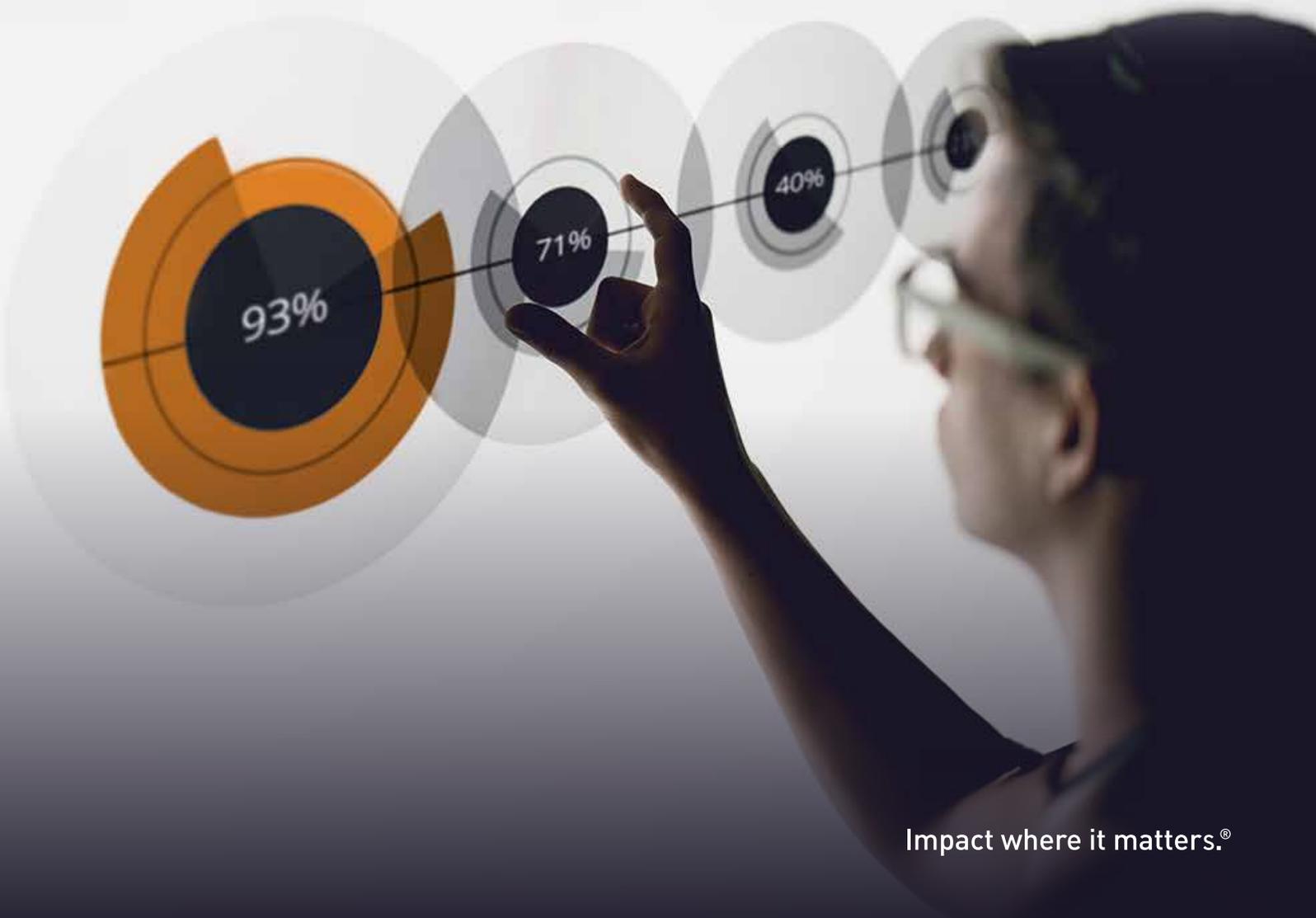
Industry tech leaders are diving headfirst into generative AI, but they're learning valuable lessons: it's not a solo act. A successful strategy needs to fit into the bigger picture.

Think of it as a puzzle piece. You need enterprise-level priorities and high-quality data. And you need a mix of data science, industry domain, business and technology skills to balance innovation and risk. Most importantly, any strategy should focus on helping the people closest to the work build their own skills and navigate the future.

To see this picture more clearly, we surveyed 127 technology executives in multinational biotechnology, pharma and life sciences who are decision-makers for their companies' data, digital and AI agendas.

While new experiments and pilots have fueled investment and raised expectations, both old and new challenges have emerged.

Here's a snapshot of how they're progressing and their outlook for 2025.

Data, digital and AI: From business enabler to growth driver

Nearly all of respondents believe that AI and emerging technologies are now **as influential or more** than traditional factors like shifting consumer preferences and rising costs in shaping their company's strategic direction (95%).
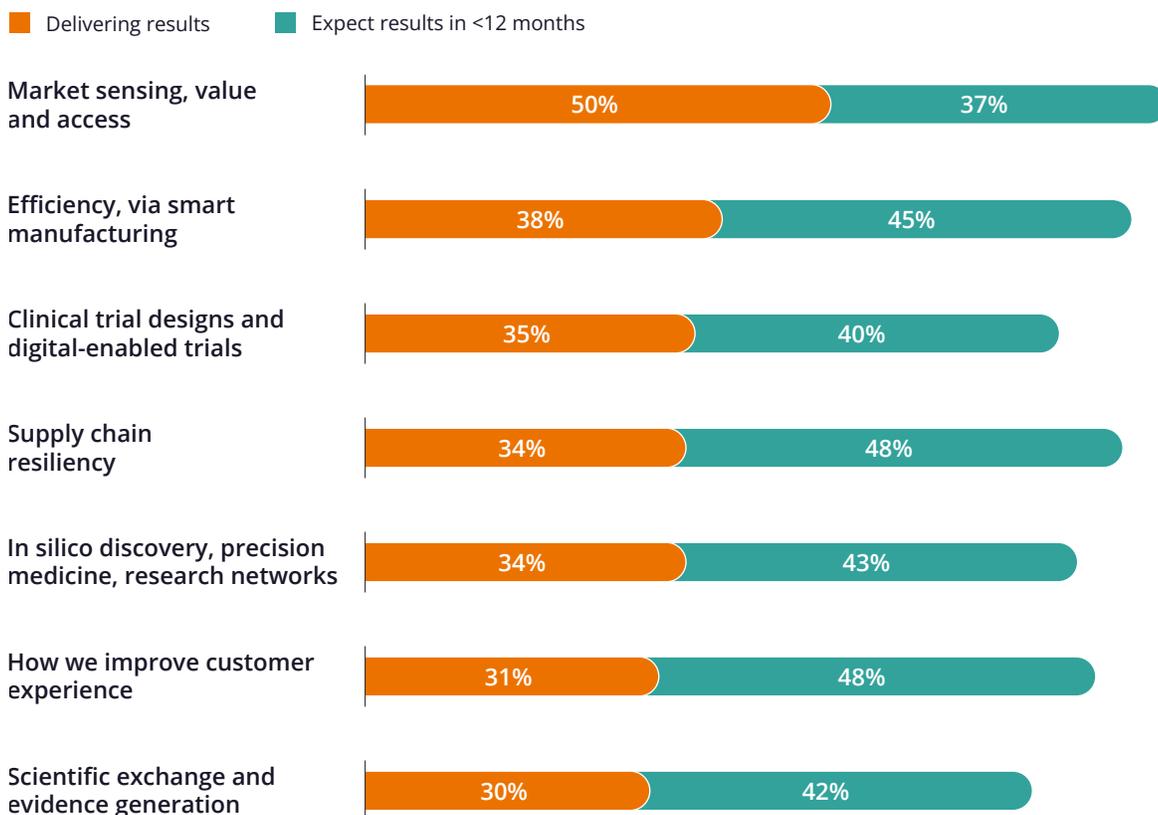
This shift is placing technological innovation as a top driver of business strategies, elevating technology's role from a supporting function to a central pillar of future success.

Despite some teams already delivering sustained, tangible value from their data, digital and AI initiatives, others still struggle to regularly translate these investments into tangible outcomes and scale progress. As we enter 2025, expect the mounting pressure for measurable results to push forward those areas that lag.

Half of our survey respondents report success in measuring tangible value with market-sensing product strategies (50%). Yet, other investments deliver value less consistently, such as those in clinical trials and manufacturing efficiency, despite high ambitions across the board (see Figure 1).

FIGURE 1:

Where are data, digital and AI investments delivering results?

■ Delivering results   ■ Expect results in <12 months

	Delivering results	Expect results in <12 months
Market sensing, value and access	50%	37%
Efficiency, via smart manufacturing	38%	45%
Clinical trial designs and digital-enabled trials	35%	40%
Supply chain resiliency	34%	48%
In silico discovery, precision medicine, research networks	34%	43%
How we improve customer experience	31%	48%
Scientific exchange and evidence generation	30%	42%

Source: ZS. Q: To what extent has your company's investments in data, digital and AI delivered tangible results toward your company's value objectives in each of the following areas? Base: 127 multinational pharmaceutical, biotechnology and life sciences executives.
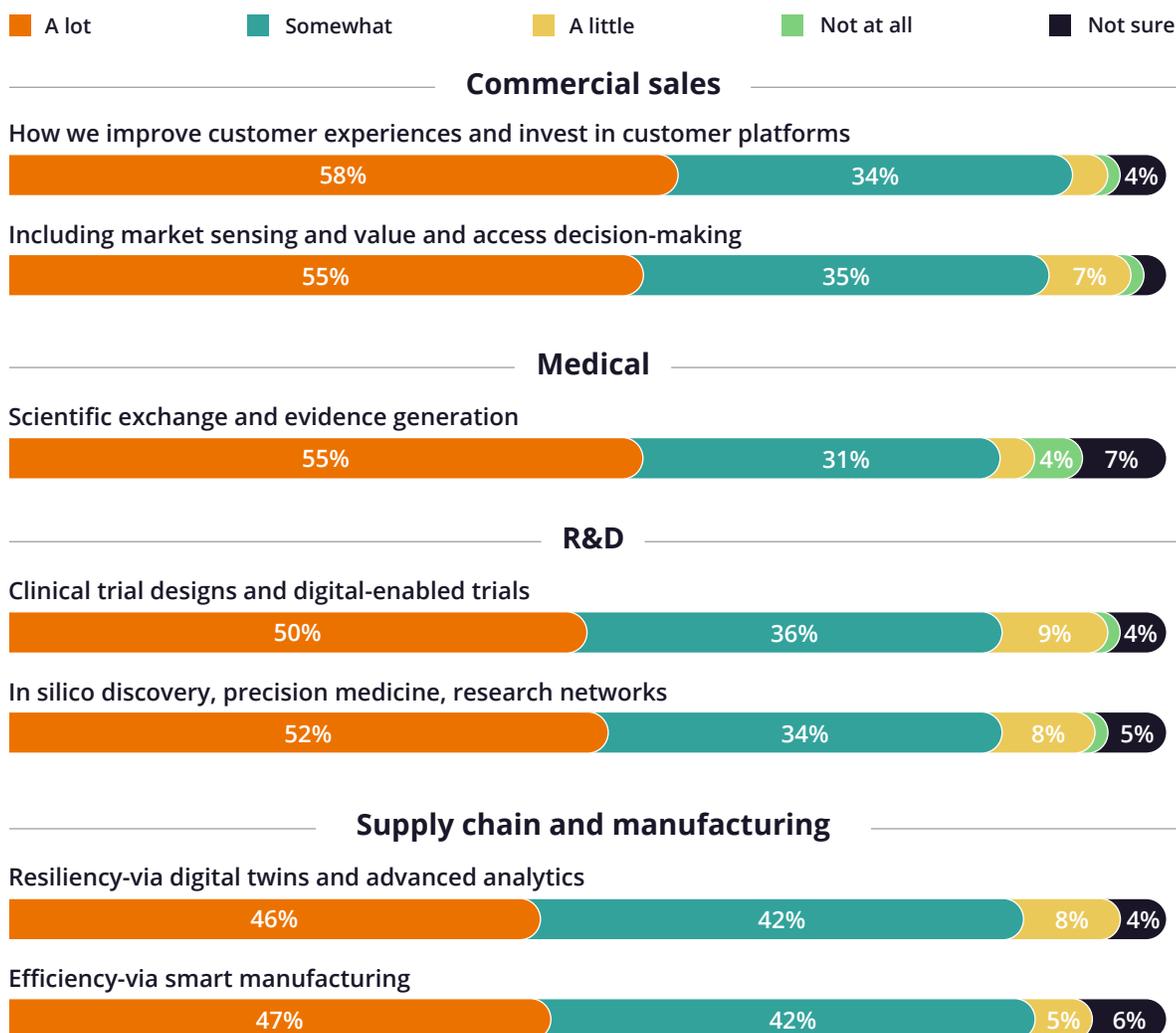
Our survey shows no signs of a slowdown in investments in data, digital and AI. In fact, companies are planning to dial up their spending in these areas for 2025, with 93% anticipating an increase in investments, up from 88% the prior year.

> **93% anticipate an increase in investments for data, digital and AI in 2025.**

Those investments will be distributed across all primary business domains, as half of these executives expect significant new investments in commercial, medical and research and development functions (see Figure 2).

FIGURE 2:

Plans for investments by primary domain

■ A lot　　■ Somewhat　　■ A little　　■ Not at all　　■ Not sure

Commercial sales

How we improve customer experiences and invest in customer platforms

| 58% | 34% | 4% |

Including market sensing and value and access decision-making

| 55% | 35% | 7% |

Medical

Scientific exchange and evidence generation

| 55% | 31% | 4% | 7% |

R&D

Clinical trial designs and digital-enabled trials

| 50% | 36% | 9% | 4% |

In silico discovery, precision medicine, research networks

| 52% | 34% | 8% | 5% |

Supply chain and manufacturing

Resiliency-via digital twins and advanced analytics

| 46% | 42% | 8% | 4% |

Efficiency-via smart manufacturing

| 47% | 42% | 5% | 6% |

Source: ZS. Q: To what extent do you expect your company to invest in data, digital and AI innovation in the following areas over the next 12 months? Base: 127 multinational pharmaceutical, biotechnology and life sciences executives.
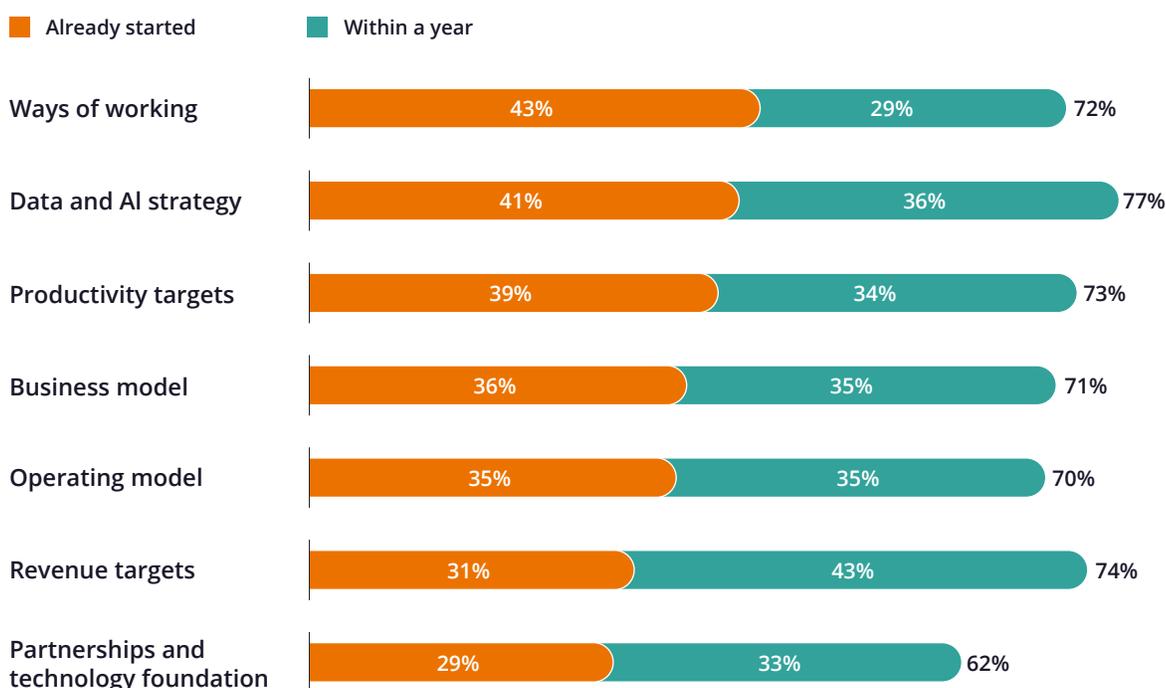
Striking a balance: How far and how fast to change

Respondents say their companies are using their interest in gen AI to make big changes and speed up transformation timelines. It's not just about tech—it's about how tech is changing everything.

The opportunities they see ahead for using AI are leading to changes in data strategies (77%), revenue targets (74%), productivity targets (73%) and ways of working (72%).

FIGURE 3:

When will AI and generative AI opportunities affect these areas of your company?

■ Already started   ■ Within a year

Area	Already started	Within a year	Total
Ways of working	43%	29%	72%
Data and AI strategy	41%	36%	77%
Productivity targets	39%	34%	73%
Business model	36%	35%	71%
Operating model	35%	35%	70%
Revenue targets	31%	43%	74%
Partnerships and technology foundation	29%	33%	62%

Source: ZS. Q: When do you expect your company to make changes, if at all, to any of the following areas because of AI and generative AI opportunities? Base: 127 multinational pharmaceutical, biotechnology and life sciences executives.

Tech leaders themselves are placing greater emphasis on the people agenda than they did in last year's survey.

Their responses highlight the urgent need for boundary-spanning leaders who can bridge the gap between technology and business, championing the development of more modern capabilities.

Specifically, we're observing an increased interest in two areas: aligning teams around technology-driven goals and investing in upskilling.

> **2025 will bring increased interest in two areas: aligning teams around technology-driven goals and AI upskilling.**

In 2025 companies plan to:

- Create teams to work toward company goals rather than individual products or technologies (72%, up from 56% in 2023).

- Invest in digital fluency and AI upskilling (69%, up from 51% in 2023).

- Change how they attract digital and technology talent (56%, on par with 2023).

- Change technology roles to focus on developing internal products or platforms (46%, on par with 2023).

Our survey respondents are also planning to elevate the role of technology in their organizations.

In 2025, they plan to:

- Improve how the technology organization demonstrates business outcome measures (60%).

- Shift toward more proactive innovation (59%).

- Improve organizational agility (52%).

- Embed data privacy and security into development practices (41%).

New questions about the enterprise data strategy

Looking ahead, we see a growing recognition that traditional data strategies are no longer sufficient. As companies continue to experiment with generative AI, 77% say they've either already adjusted or plan to overhaul their data strategies.
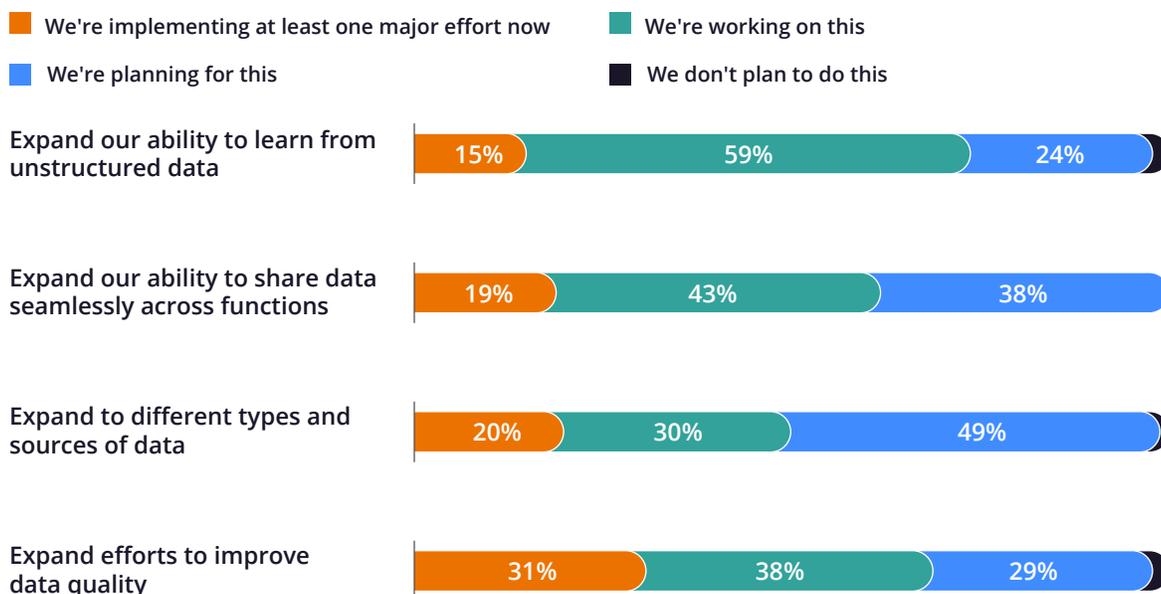
> **77% say they've either already adjusted or plan to overhaul their data strategies.**

The top companies are taking a hard look at their data foundations. They're focused on cleaning up and organizing their data, ensuring that their AI models are well nourished with high-quality information. But they're also expanding their data horizons (see Figure 4).

New data sources, once considered out of reach, are now being explored. Data silos are being dismantled to enable seamless sharing across the enterprise. And AI is being taught to learn from unstructured data like audio, videos and documents.

FIGURE 4:

Where companies are focusing their data efforts

■ We're implementing at least one major effort now   ■ We're working on this
■ We're planning for this   ■ We don't plan to do this

Expand our ability to learn from unstructured data
15% 59% 24%

Expand our ability to share data seamlessly across functions
19% 43% 38%

Expand to different types and sources of data
20% 30% 49%

Expand efforts to improve data quality
31% 38% 29%

Source: ZS. Q: To what extent is your company taking any of the following actions to improve its data foundations in the next 12 months? Base: 127 multinational pharmaceutical, biotechnology and life sciences executives.

Gen AI use: Early days of building trust

Leaders also now have a clearer picture of how new generative AI-powered tools could fit into everyday work through their initial experiments with large language models (LLMs)—although undoubtedly these tools will change.

When a new project begins, leaders often feel a strong sense of urgency and high expectations for rapid development cycles, seamless integration into existing workflows and a quick demonstration of tangible results.

Most (64%) say they expect their teams to fully adopt a new generative AI capability from project launch to full utilization in less than six months, and nearly all expect full utilization within a year (90%).

To date, survey results show a measured approach to company-sanctioned access to gen AI tools, however. On average, around a third of employees in each department have company-approved access to gen AI tools like open LLMs, private LLMs or gen AI integrated into existing software.

Many companies across biotechnology, pharma and life sciences are hesitant to use open LLMs due to concerns about regulations and data privacy. Some are experimenting with limited access because of the high cost of licensed products. Others are testing new tools with smaller teams while carefully monitoring their performance.

FIGURE 5:

Percentage of the workforce with access to gen AI tools

🧬	R&D	**32%**
🖥️	IT	**32%**
📈	Marketing, sales, service	**30%**
⚕️	Medical	**26%**
📋	Finance, risk, compliance, HR	**26%**
⚙️	Manufacturing and supply chain	**24%**
🔗	Other corporate functions	**17%**

Source: ZS. Q. What percentage of your company's workforce has access to generative AI tools as part of their work? This could be an open or private model or generative AI added into software, like a CRM. Base: 127 multinational pharmaceutical, biotechnology and life sciences executives.

Further, our respondents estimate that only around 10% of employees with access to company-approved gen AI tools are consistently using them on a weekly basis. These low engagement rates present a major hurdle in scaling early solutions: many employees might be interested, but they haven't seen enough value from these tools yet.

Could this be a culture or skills issue? Or perhaps the tools are producing unreliable or inaccurate results? Understanding their hesitancies is crucial, as addressing them will be essential for both scaling new tools and helping the workforce with continuous change and learning.

This might explain why some of our survey respondents think it's time to moderate gen AI investments (71%), given the work needed on many nontechnical aspects of transforming workflows. Their cautious approach is compounded by challenges such as data-related risks (26%) and unpredictable outputs (32%).

FIGURE 6:

Top challenges for scaling AI solutions

Employees that don't see the value of our AI solutions

37%

Finding talent to work with AI outputs

33%

Outputs that are prone to inaccuracy

31%

Early investments that aren't delivering results

29%

Data-related risks

26%

Source: ZS. Q: How easy or difficult are the following challenges as you seek to scale adoption of generative AI? Base: 127 Multinational pharmaceutical, biotechnology and life sciences executives.

Ideas to take the data, digital and AI agenda forward

Since the surge in interest in generative AI, we've learned a valuable lesson: there are no shortcuts. While the technology itself presents challenges, the more significant barriers to success lie within company cultures and organizations. Based on this, here are some steps that any tech leader can take:

Teach ROI as an essential skill for tech success. Beyond mastering new technologies, we expect tech leaders to drive their teams in 2025 to demonstrate the direct value these technologies deliver to the business. By asking, "How can we build a solution that creates significant value for the business?", teams can move beyond isolated projects and use cases and toward a well-organized set of activities that, together, have the potential to reduce costs or boost revenue.

Learn where product and platform-centric operating models are working and why. As gen AI evolves, companies often need different operating models, in addition to their technical models to ensure progress and sustain momentum. Product and platform-based operating models prioritize customer needs, align strategy and execution, foster a learning culture, encourage collaboration and promote data sharing. By studying where these models are working, you can learn how to adopt key components of them at a pace that's right for your own organization and culture. This approach lays the groundwork for consistent value delivery over the long term.

Expand the meaning of data strategy and use within your organization. The gen AI era necessitates a data strategy that is forward-looking, deliberate and strategic. This means developing a plan for how you will manage and use data in each core area of your business to achieve your value creation goals. High-quality, relevant data is just the start. The bigger payoff comes with combining it into connected data sets, ensuring data security, privacy and governance, and continually refining how to contextualize this data to gain deeper insights across the organization.

Define what it really means to be AI-ready in your workplace. As generative AI becomes an integral part of our workplaces, it's essential to define what it means to be "AI-ready." It's not just about an appropriate level of AI fluency, it's about demonstrating collaboration, problem-solving and a commitment to using AI responsibly and ethically in the context of the goals of the business. To foster this, provide relevant, hands-on opportunities for employees to experiment with generative AI in a safe and trusted environment. Set clear expectations and lead by example, showcasing how these principles should be integrated into daily work.

About the authors

Mahmood Majeed is a managing principal at ZS and leads the company's global digital and technology practice areas. He has partnered with more than 100 global life sciences companies, advising clients on delivering measurable business outcomes by realizing and optimizing the value of investments in technology, digital and AI that directly contribute to growth initiatives.

Jessica Jarvis is the global digital transformation lead at ZS. She holds a passion for innovation and finding value at the intersection of customer needs, AI and technology. She's helped dozens of the top global pharmaceutical, biotech and healthcare companies develop and implement sales and marketing strategies, leverage digital health solutions, effectively use real-world data and better connect technology applications to real business need across the enterprise (R&D, manufacturing, medical and commercial). Today she is extending those services to help organizations determine how to realize value from the next wave of innovation with generative AI.

About the survey

The Harris Poll conducted an online survey on behalf of ZS from July 26 to August 8, 2024. The survey targeted 127 technology executives at pharmaceutical, biotechnology and life sciences companies who are decision-makers for their companies' technology infrastructure, analytics and technology strategy. Half (56%) of respondents are executive-level titles (CDIO, CIO, CTO) and the rest are senior level decision-makers. Percentages may not add up to 100% due to rounding or the acceptance of multiple responses.

About ZS

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