

The LeadDev

Engineering Performance Report 2025

We asked 400 engineering leaders how they are measuring the performance of their systems and the impact AI is having on that performance.



Editor's note

For the past four years, we have tracked how engineering leaders measure the performance of their teams. Now, we want to better understand how you measure the performance of what those teams produce.

Traditional performance reporting strategies no longer capture the realities of AI-assisted code, complex hybrid cloud infrastructures, and distributed ownership. This report provides context for examining how engineering leaders adapt their measurement frameworks, allocate budgets, and continuously improve observability practices to align with evolving business priorities.

Cloud optimization and AI-assisted development are reshaping what high performance means. This evolution marks a transition from a focus on system stability to supporting AI-enabled business change. Such an evolution is recognition that performance is no longer just a reliability metric, but also a business enabler.

Engineering leaders are increasingly tasked with tracking performance, cost, and sustainability against a backdrop of tightening budgets, AI disruption, and increased scrutiny. We hope this report helps better contextualize that challenge, and uncover new ways of doing things.

Scott Carey
Editor in Chief, LeadDev



Top takeaways

67% think performance is a **high or top priority** for their job.

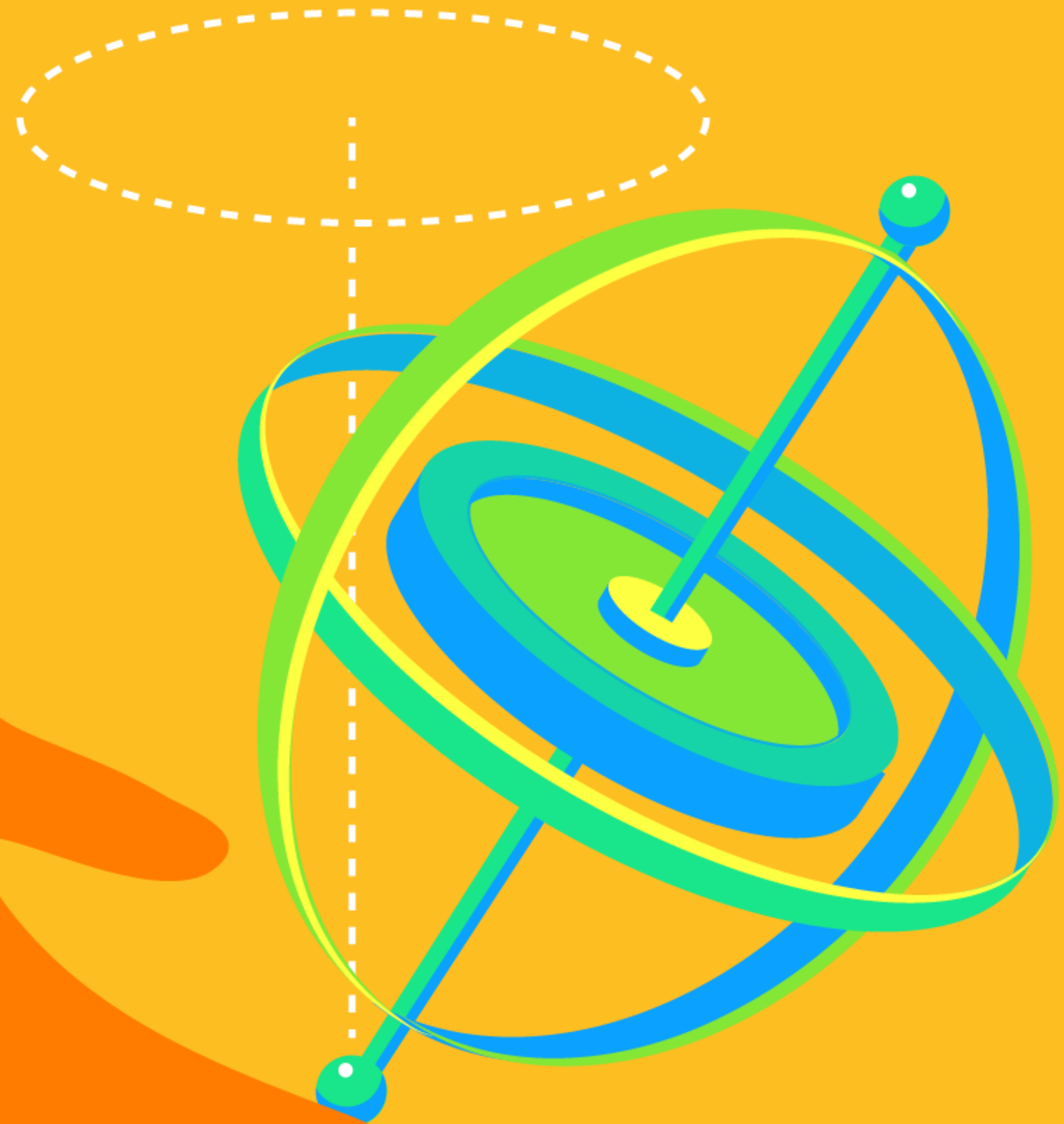
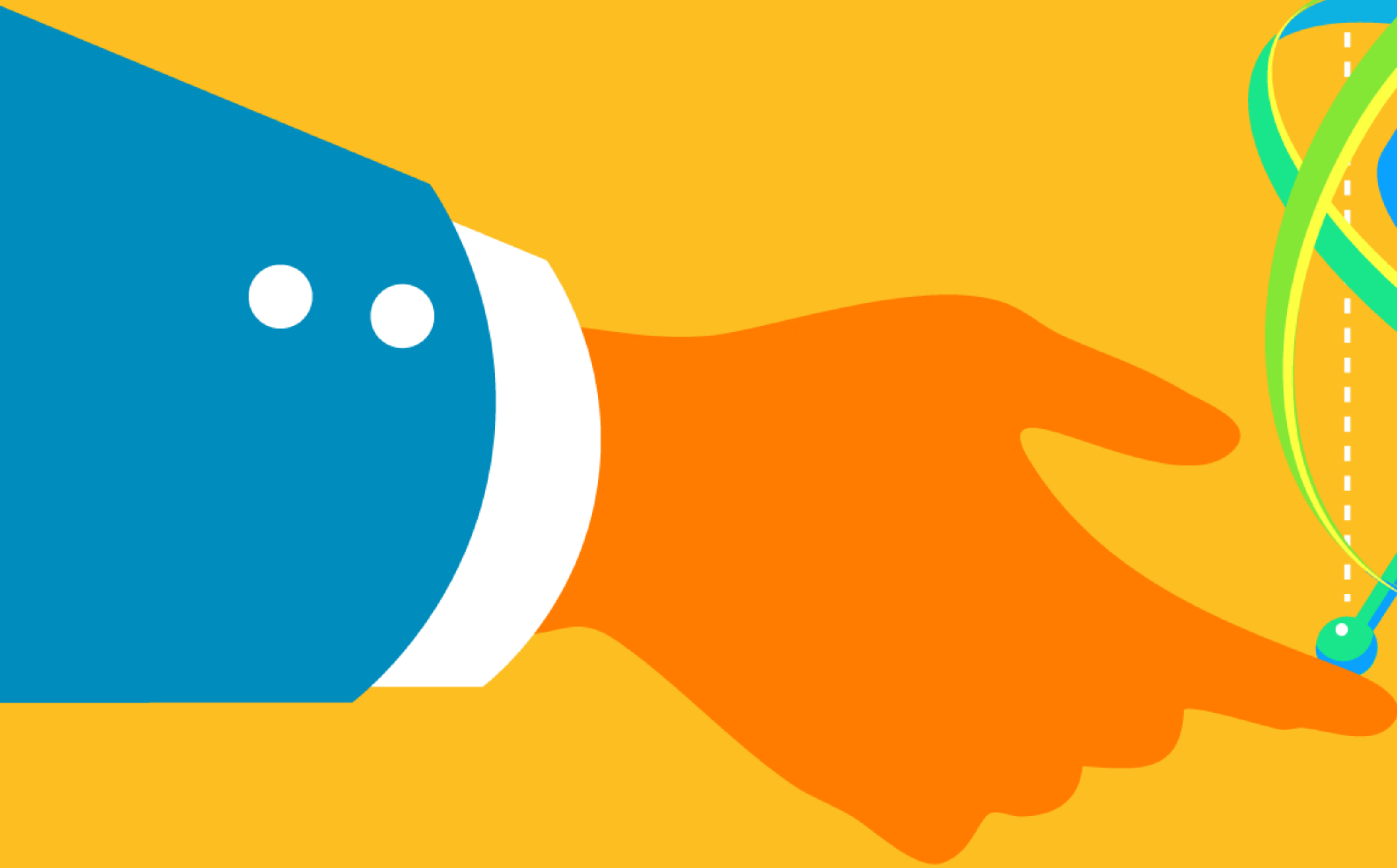
69% use number of incidents as a **performance metric**.

20% of organizations track **AI model performance**.

69% say it's easy to secure **budget for AI initiatives**.

31% are using **OpenTelemetry**.

Measuring performance

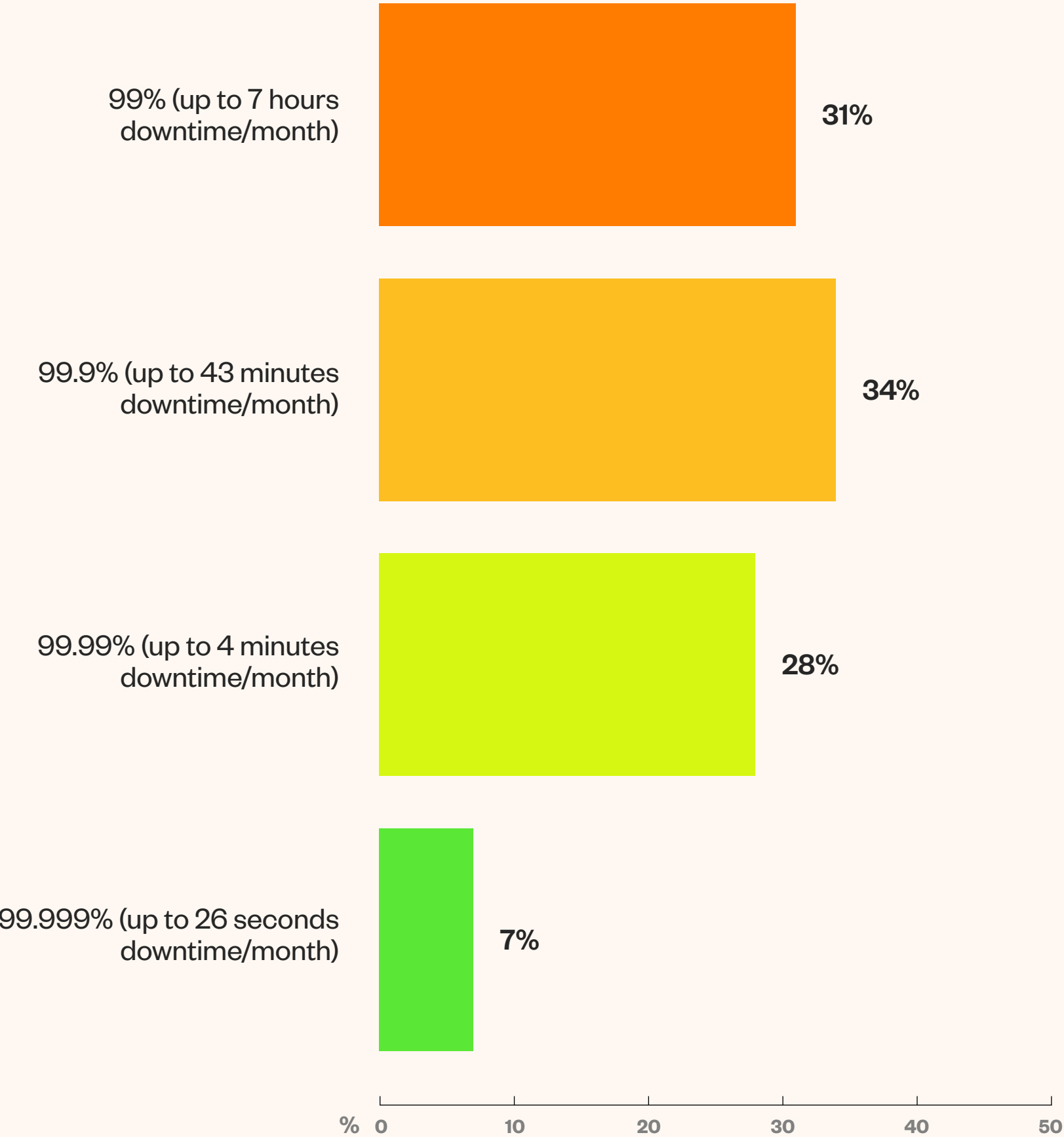


Measuring performance

It may seem fundamental to the job of engineers, but just how important is performance? Two-thirds (67%) of respondents say performance is a high or top job priority, yet definitions of what that looks like vary widely.

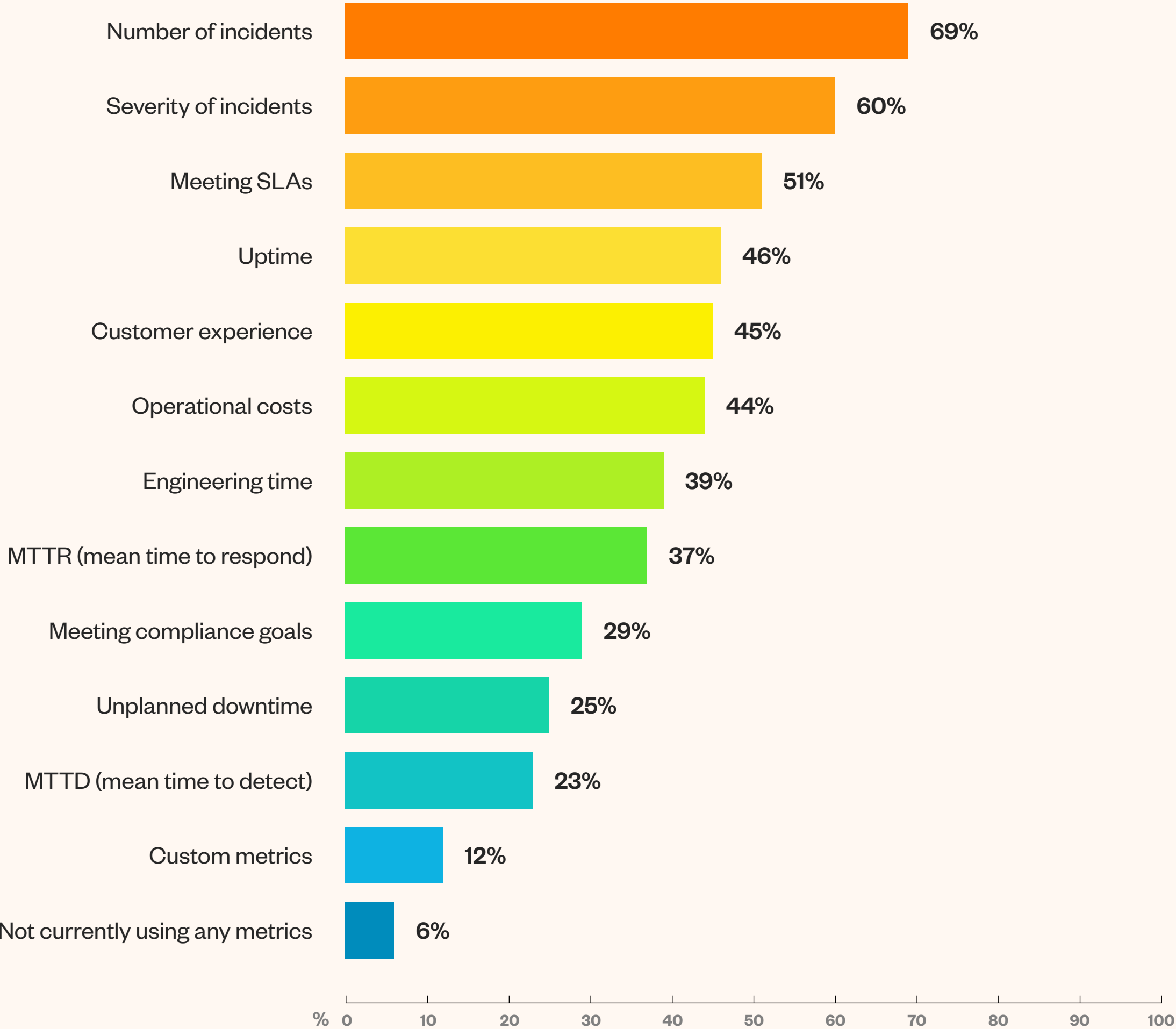
Only 7% of respondents require five nines (99.999%) of uptime, and 28% need four nines. However, 51% of organizations with 500+ engineers require at least 99.99% uptime vs. 21% for those with fewer than 20 engineers.

Which of the following best matches your organization's uptime requirement?



When it comes to metrics for measuring system performance, the number and severity of incidents still reign supreme. Operational costs are also part of the equation across organizations: 44% include them in performance tracking.

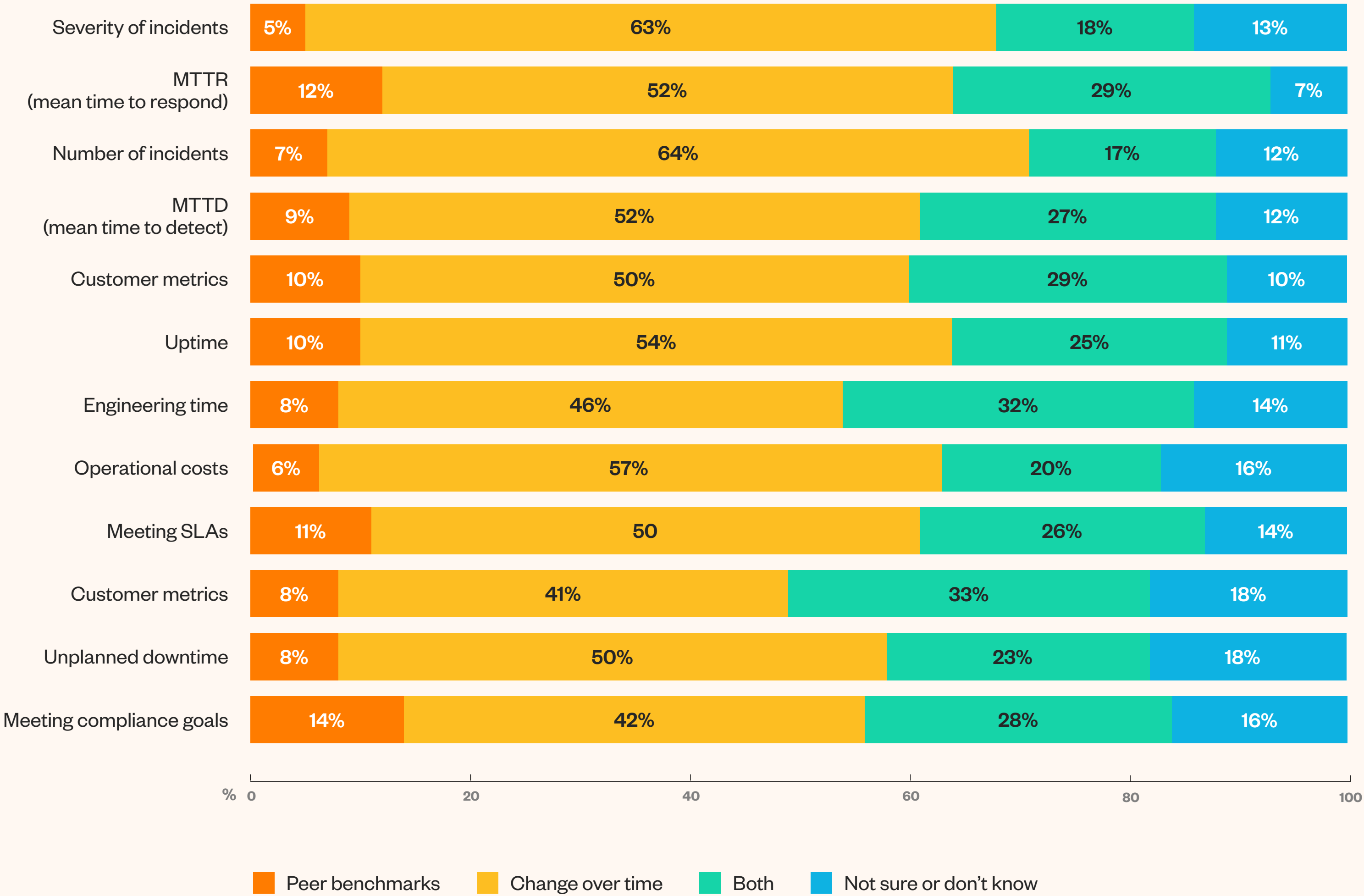
Which of the following metrics does your team use to measure the performance of your systems?



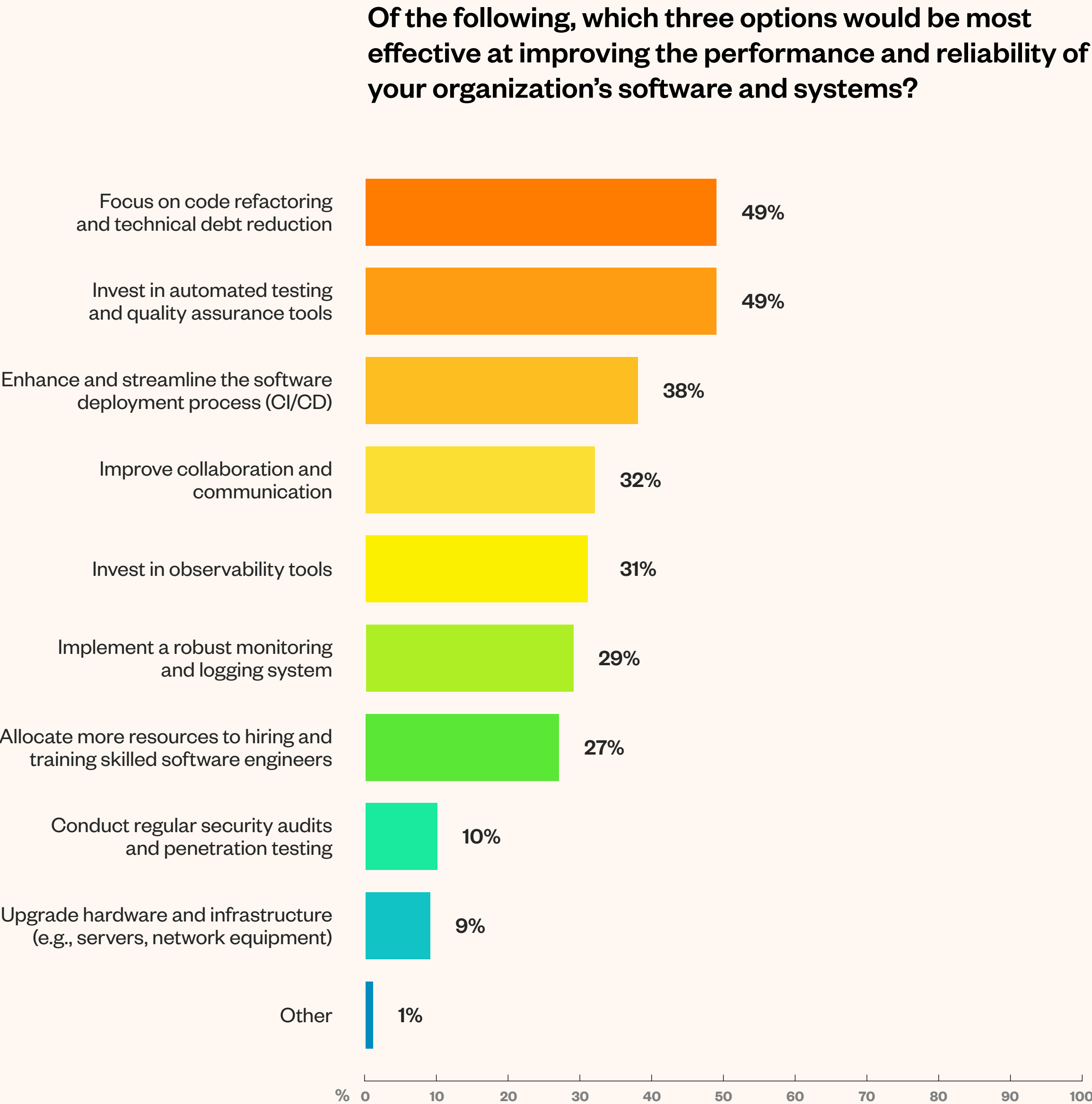
Organizations are more than twice as likely to benchmark against their past performance (77%) than against peers (34%), signaling an inward-looking metrics culture. Benchmarking against past performance is a powerful tool for capturing progress and diagnosing drift.

Such benchmarking requires instrumentation, metrics analysis, and context to deliver meaningful, actionable results. Proactive teams should include it in quarterly or release-cycle reviews to ensure application performance remains part of governance.

For the metrics that your team uses, do you actively compare the metrics your team uses against peer benchmarks, change over time, or both?



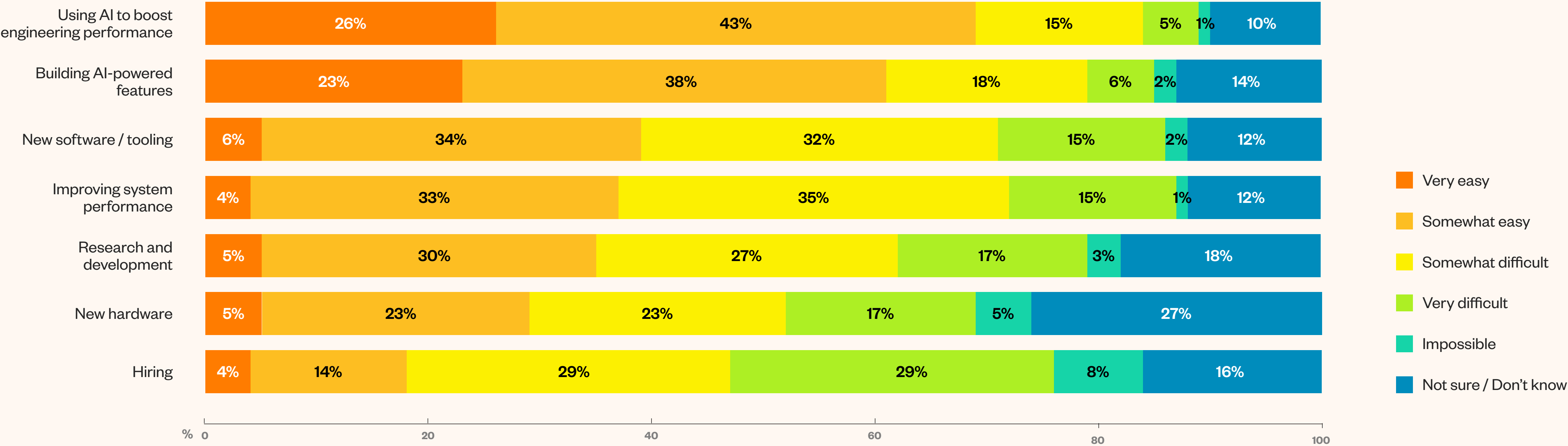
When it comes to improving performance, nearly half of engineers cite code refactoring and technical debt reduction as among the most effective levers at their disposal, well ahead of tooling or hardware upgrades.



Budget realities further constrain improvement efforts. While it's easy to secure budget for AI initiatives, 66% of engineers find it difficult to secure hiring budgets, and 45% report similar struggles with securing budgets for new hardware.

Only 23% list observability as a top investment area, though 31% recognize that investing in observability tools is one of the most effective levers for improving performance.

How easy is it to currently secure new budget aimed at:

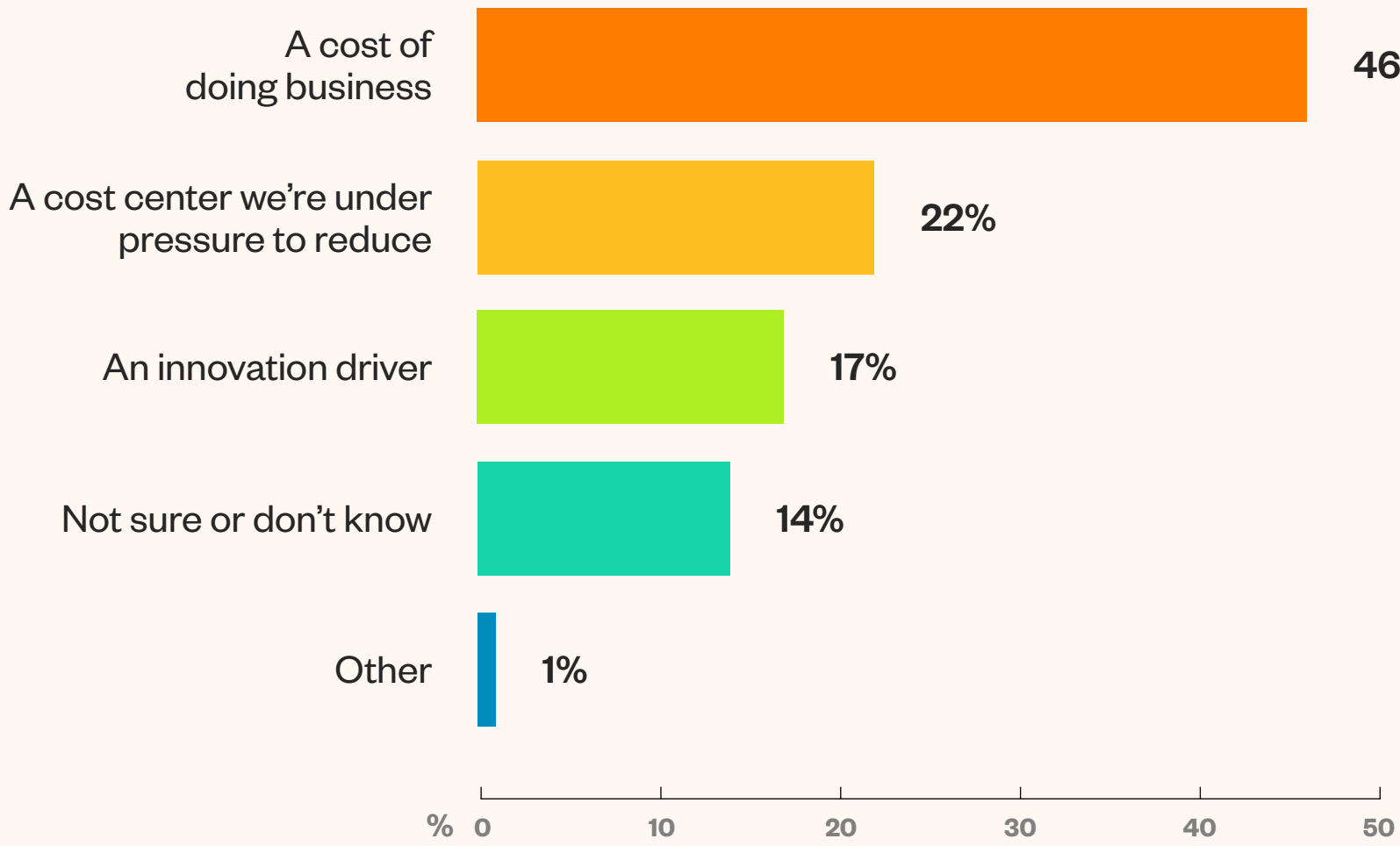


Nearly half (46%) view spending on performance as a cost of doing business rather than an innovation driver.

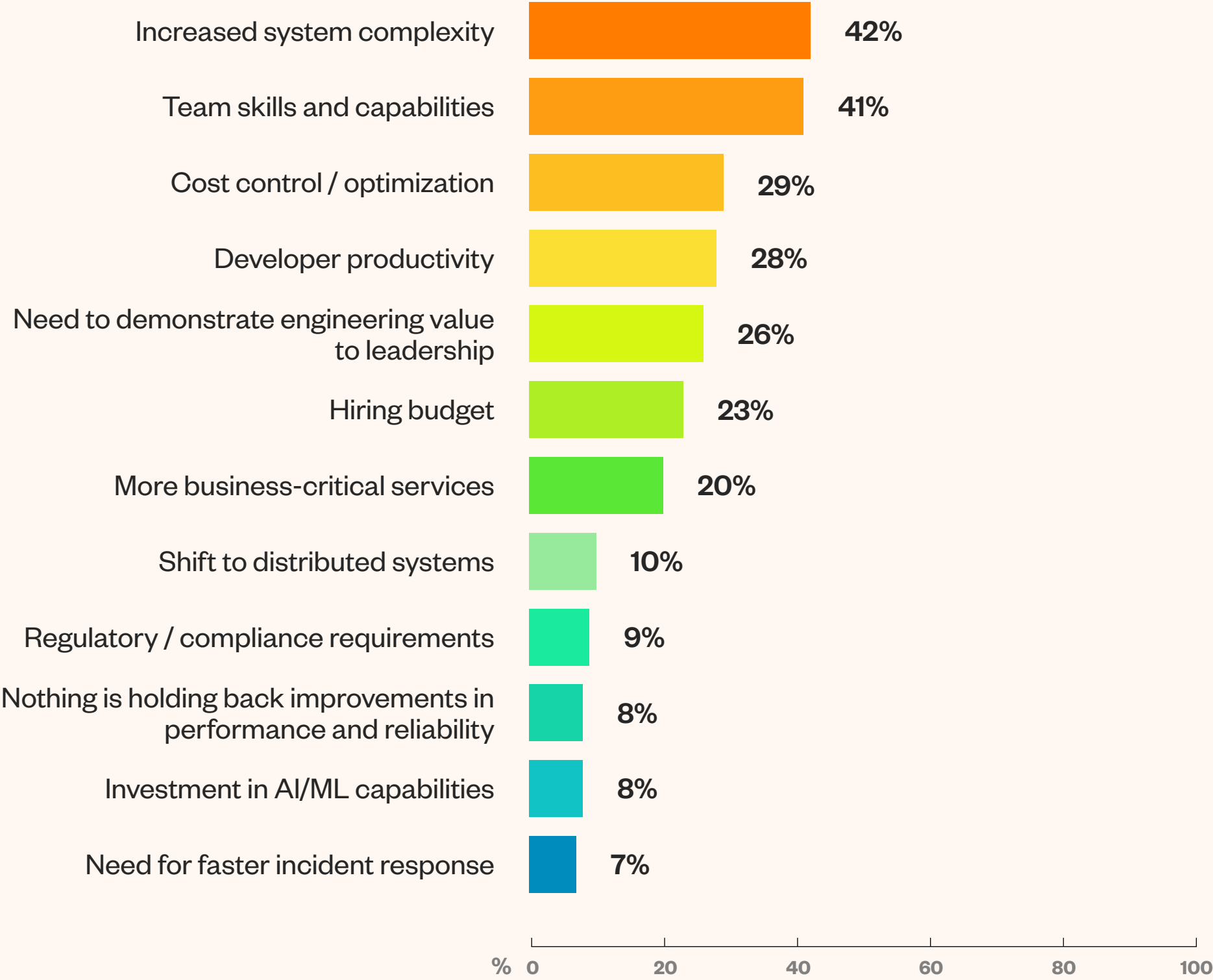
Complexity and skill gaps remain the top barriers to improving the performance and reliability of organizations’ software and systems, with 42% citing system complexity and 41% citing team capability limits as performance blockers.

Together, these findings highlight a tension: engineers understand what drives better performance, but often lack the time, budget, or organizational mandate to pursue it through observability.

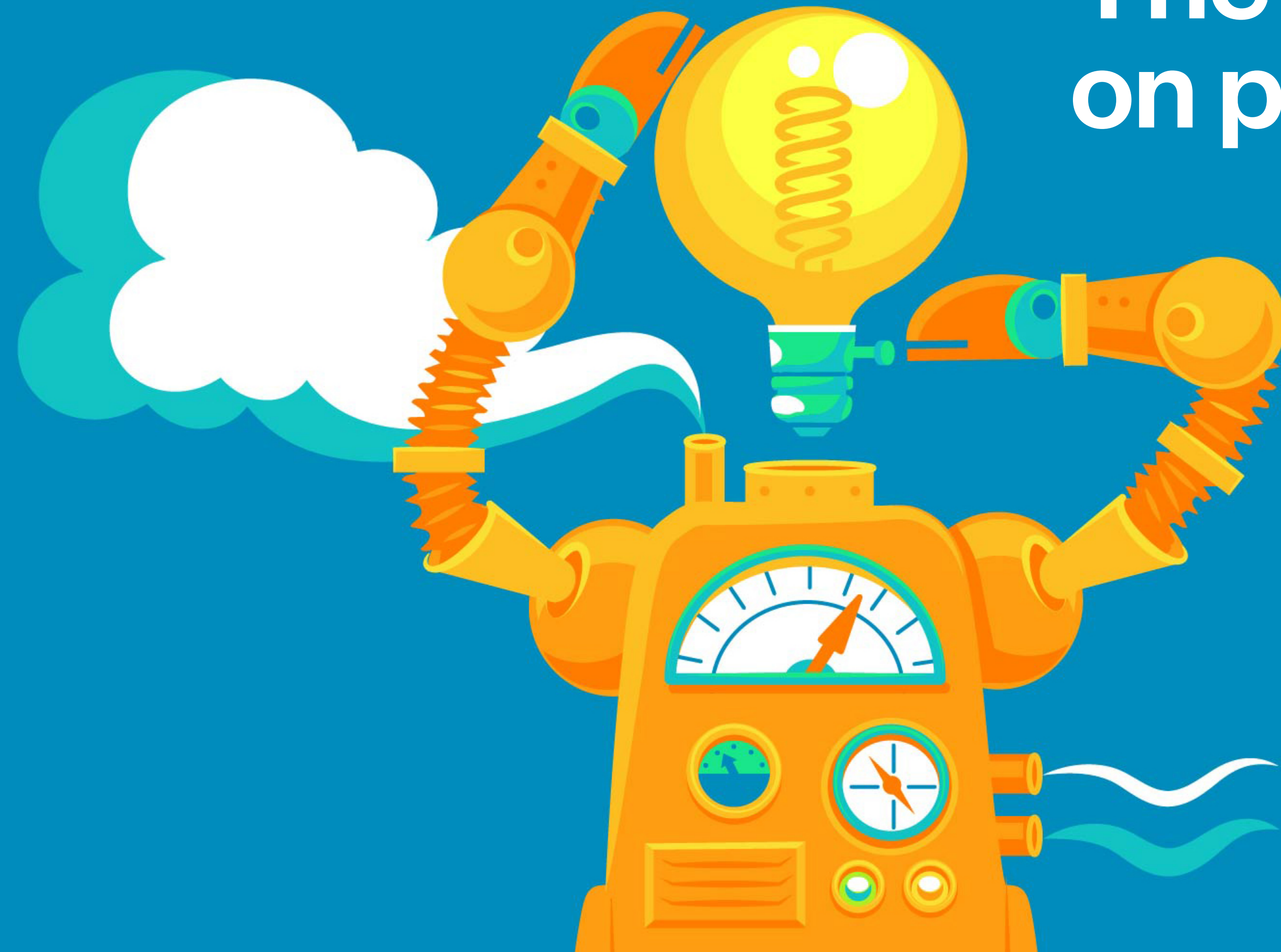
Is spending on improving software and systems performance in your organization primarily seen as:



What are the top three factors that are holding back the performance and reliability of your organization’s software and systems?



The AI impact on performance



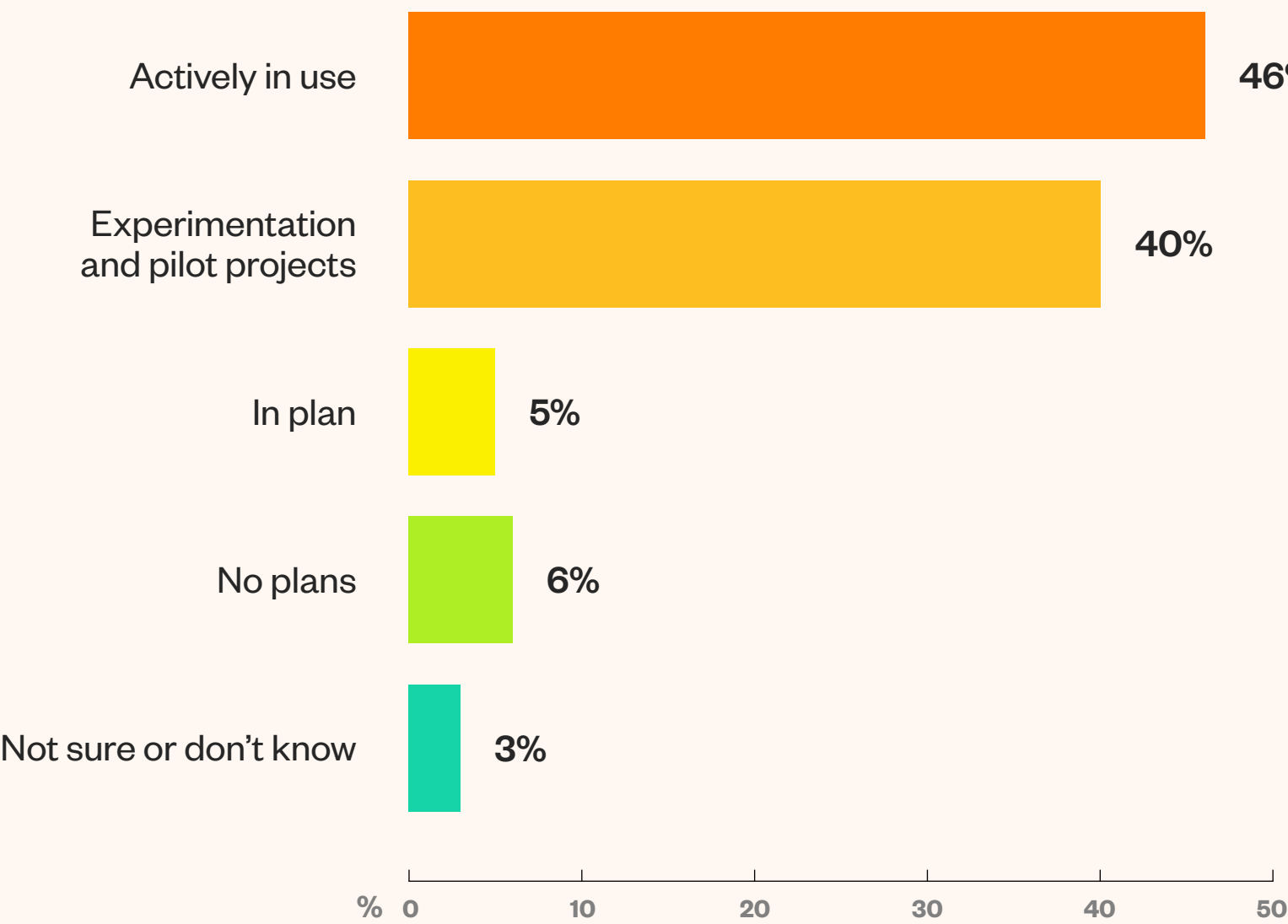
The AI impact on performance

As we already covered, AI investments are booming, but spending on core engineering initiatives is getting less attention. Nearly half (46%) of organizations actively use generative AI tools, and 40% are experimenting with AI

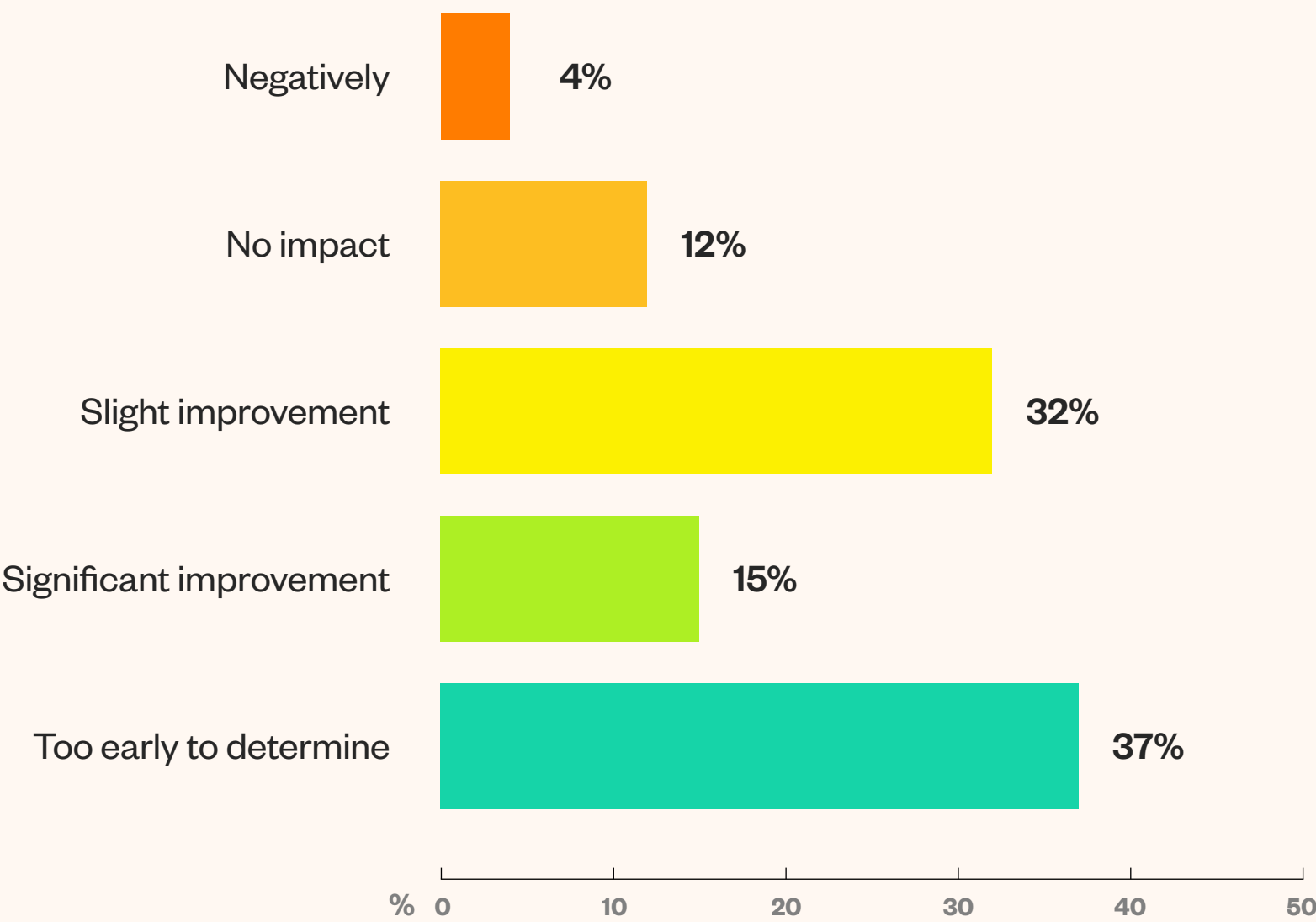
tools. Funding almost always follows hype: hiring and hardware budgets remain tight. When asked about AI's impact on performance, 37% of respondents say it's too early to say. That's a refreshing

answer, given the AI hype that technical and business stakeholders must endure in the current market. Among organizations actively using AI to improve performance, 22% report significant gains, versus 8% among experimenters.

What is the status of your organization's use of generative AI tools, agents, or models to improve software performance?



How has the introduction of generative AI tools, agents, or models helped improve the performance of your software or systems?

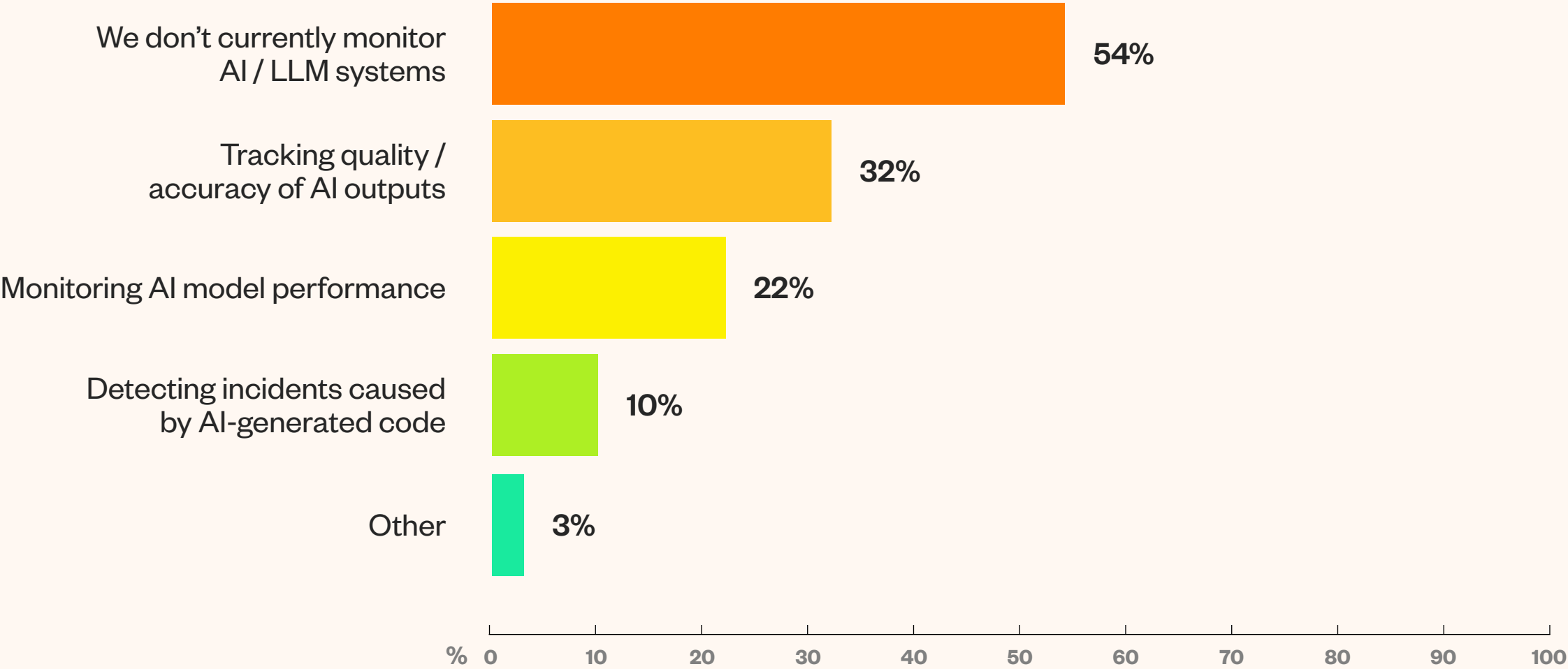


Monitoring also remains immature, with just 22% of organizations that are using or experimenting with AI to improve performance specifically monitoring the performance of AI models. This monitoring gap highlights the growing risk that AI adoption is outpacing observability practices' ability to cover these AI applications. 58% of those who treat performance spending as a driver of

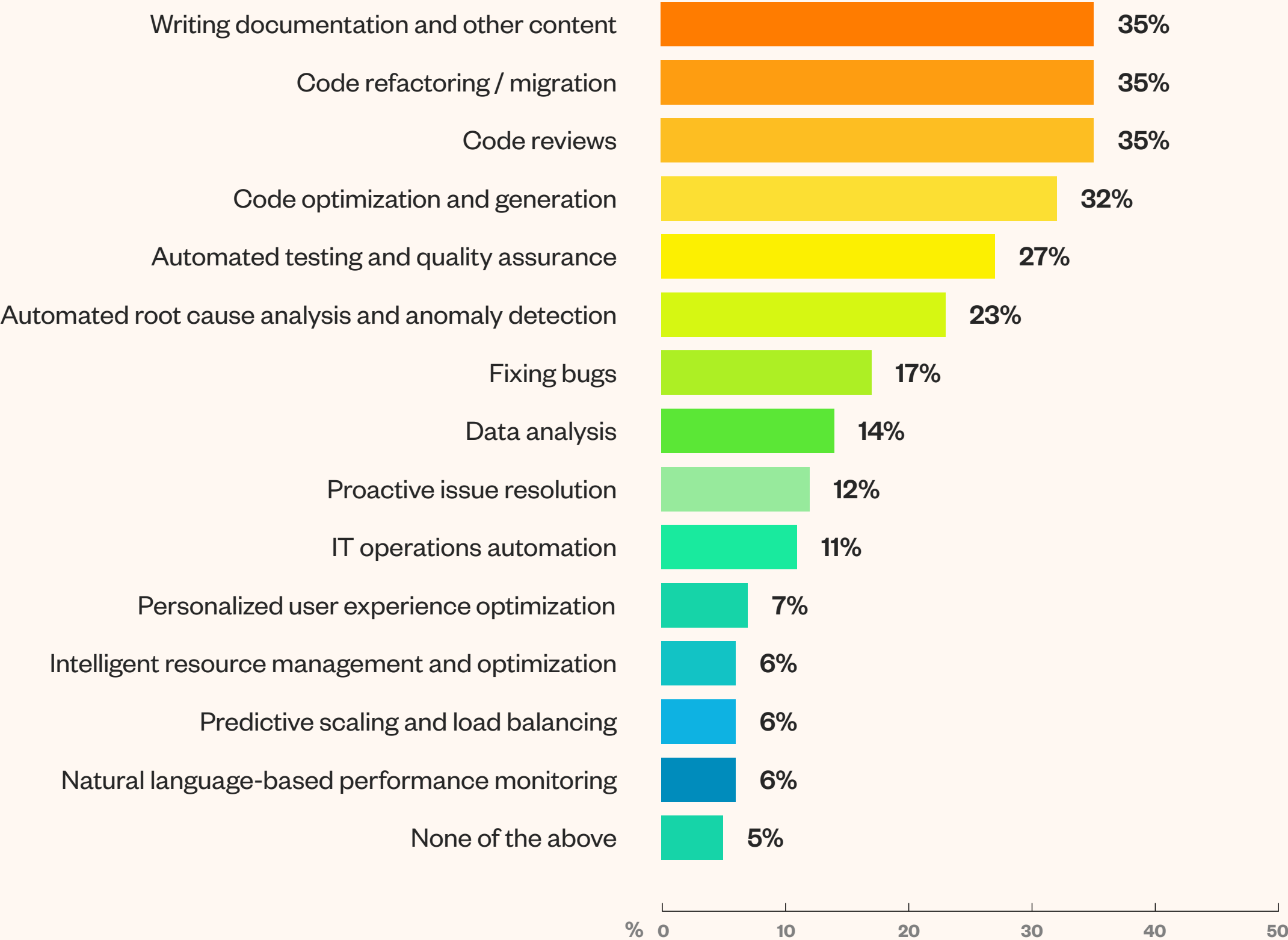
innovation report AI-driven gains, suggesting culture, not tooling, predicts AI success.

Respondents see the highest potential for AI to improve things in the domains of documentation, code reviews, and refactoring (each 35%). The trend points toward augmentation, not replacement – AI as a performance multiplier, not an autonomous operator.

How are you currently monitoring the performance of AI/LLM-driven systems?



Where do you see the most potential for AI and LLMs to impact software performance?



Observability tools and practices



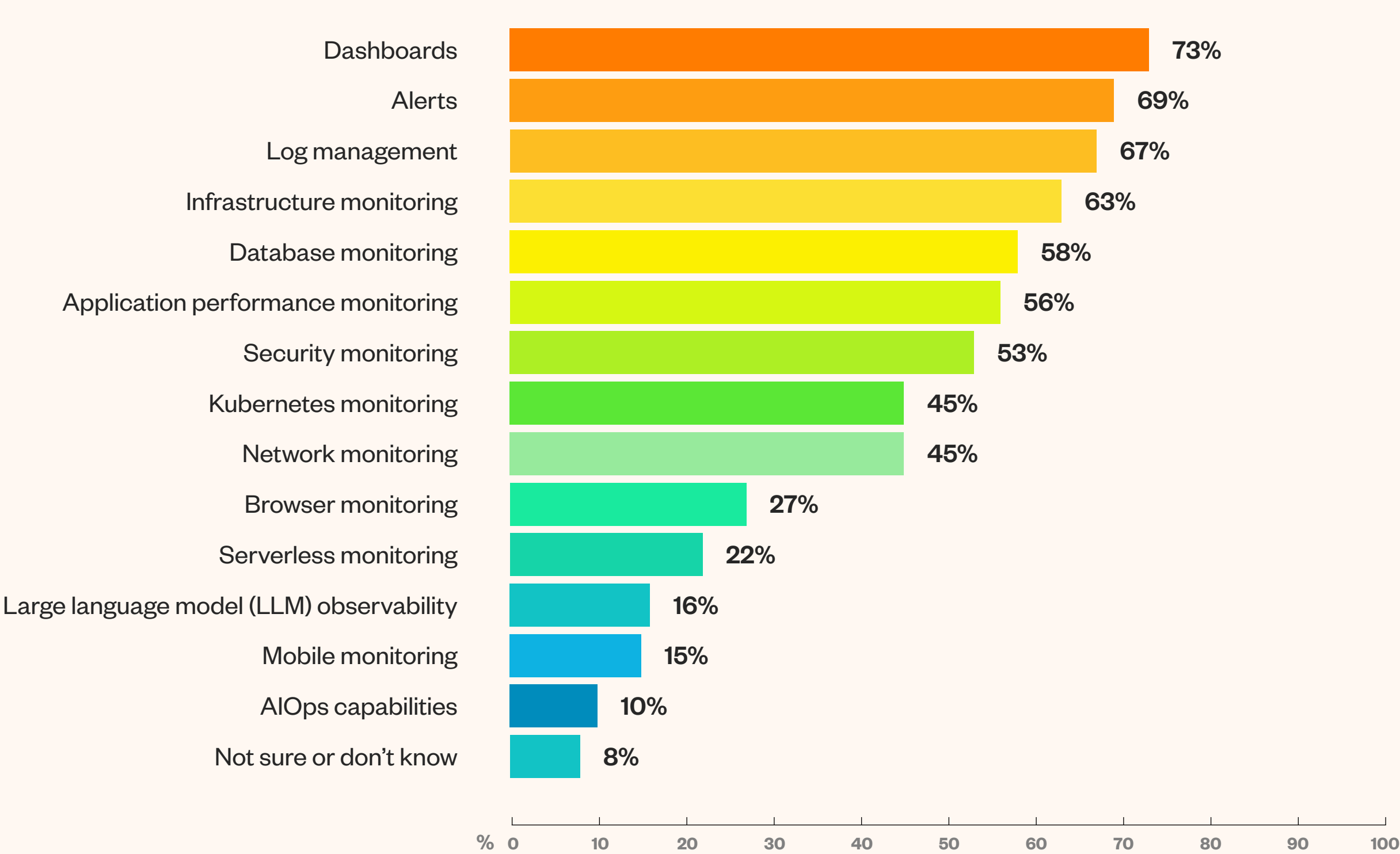
Observability tools and practices

When it comes to measuring performance, the humble dashboard and alert still reign supreme, with nearly three quarters of respondents using both of these.

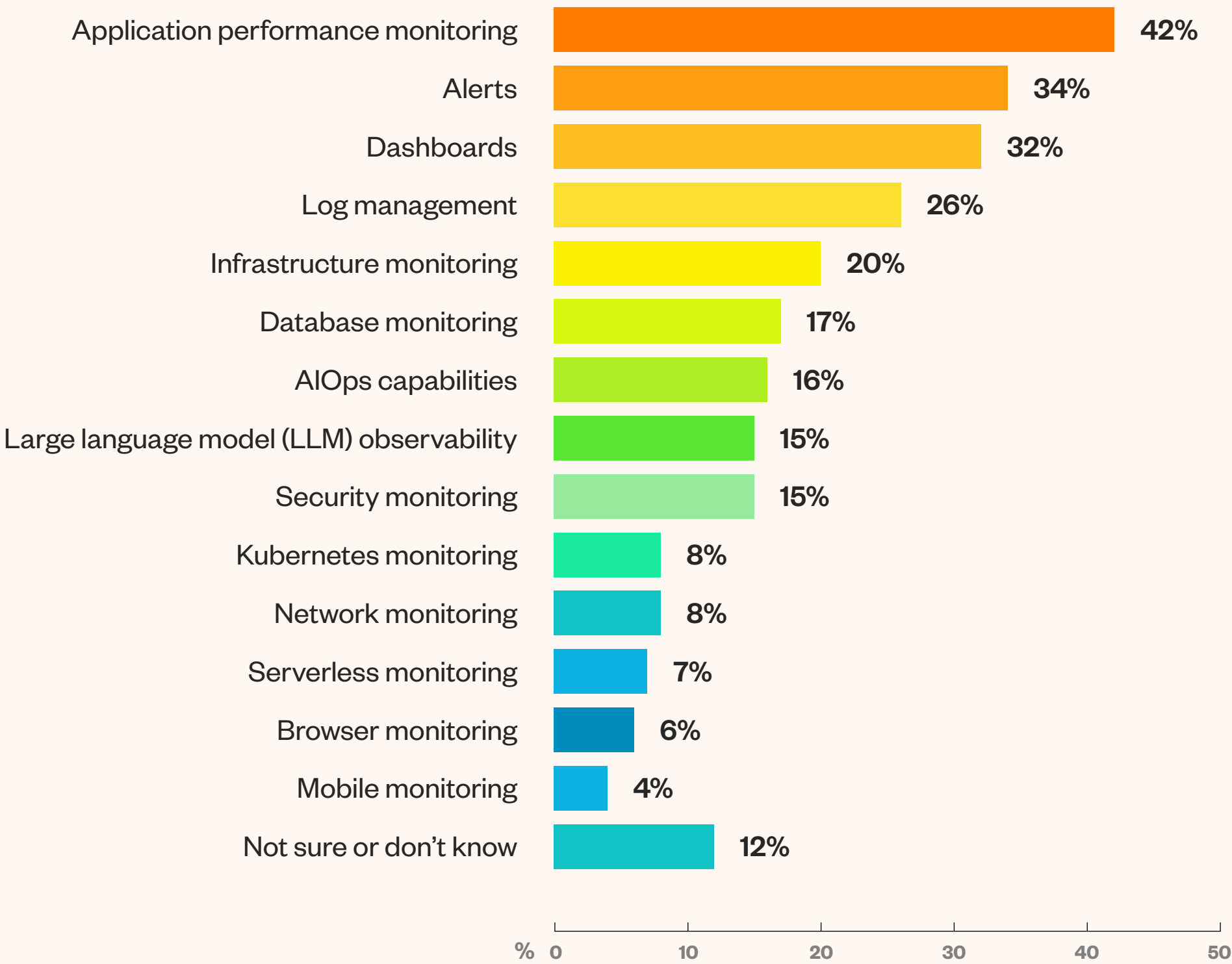
But that picture changes when you ask which of these basic observability capabilities could actually add the most value. That’s when application performance monitoring (APM) jumps

to the top of the pile. Elsewhere AIOps (whatever that means) and large language model observability also rise up the ranks, showing the prevalence of AI in engineering leaders’ thinking.

Which observability capabilities are you currently deploying in your organization?



Of the capabilities below, which THREE have the potential to add the most value for your day-to-day work?



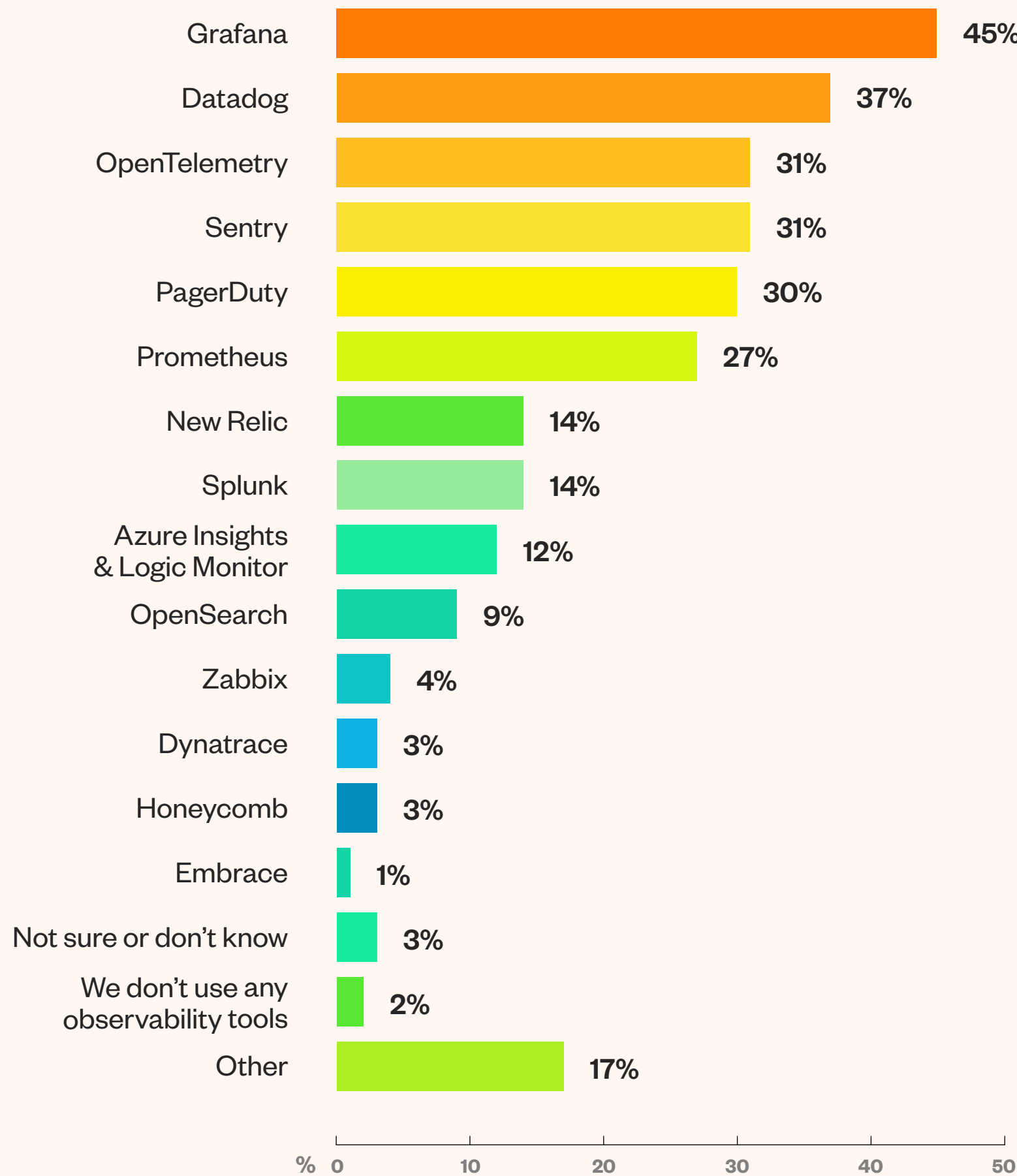
In terms of tools, Grafana (45%) and Datadog (37%) dominate, while the open source OpenTelemetry (31%) plays a cross-tool role, often alongside Grafana and Prometheus.

Open source tools will continue to influence or play an overt role in the observability space for some time to come. Tech leads show higher adoption of database and serverless monitoring, while engineers lag in dashboard and infrastructure use. Despite long-standing adoption, observability remains underused: over half of organizations have practiced it for 5+ years, their company spends on it, but only 42% of respondents regularly use observability data to inform decisions.

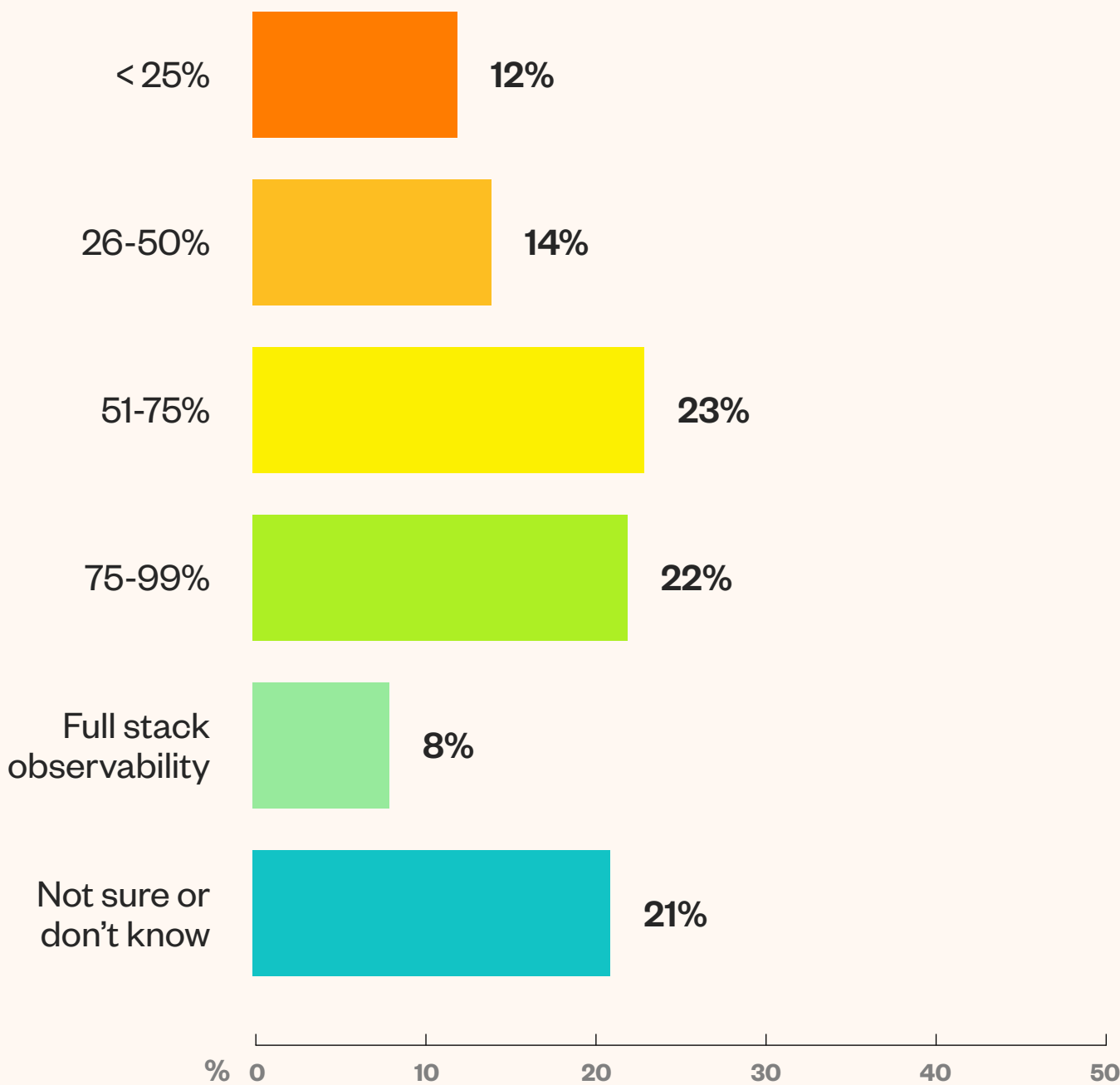
Despite this adoption, only 12% of engineers always use observability data to drive continuous improvement. Over 40% say they do so often, but nearly a quarter rarely or never leverage it.

Full-stack observability is visibility with context, including where performance data turns into shared understanding, and shared understanding turns into faster, smarter delivery. It's a rare feat, with only 8% of respondents saying they've achieved it. Among small teams (<10 engineers), a lack of time (57%) and cost (46%) are the top barriers to achieving full-stack observability.

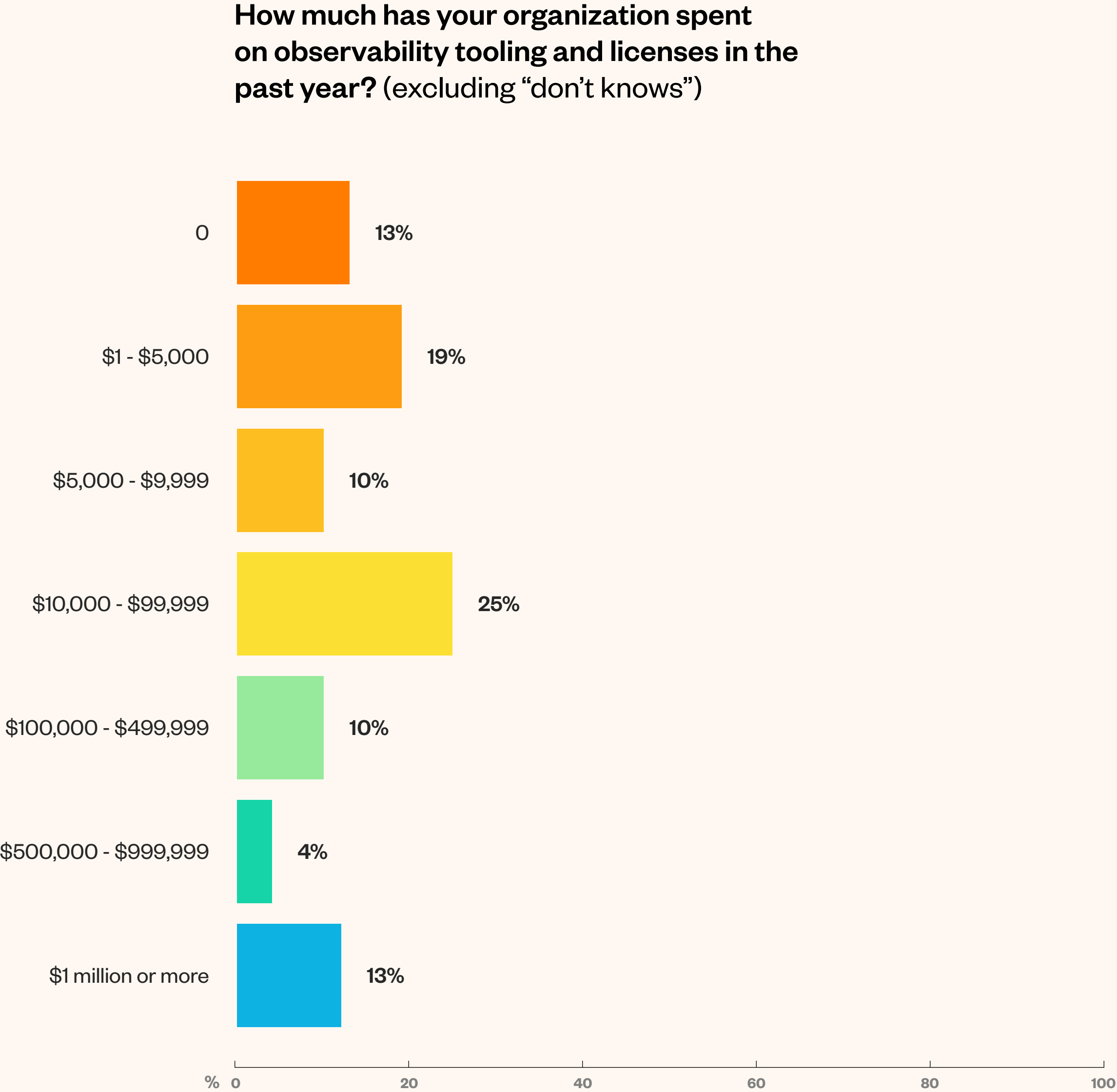
Which observability tools does your organization currently use?



How much of your stack is currently observable via telemetry data?



Among those with visibility of their organization’s budgets, 58% spend at least \$10,000 annually on observability, though 54% overall don’t know how much they spend. Larger organizations cite competing priorities, particularly AI mandates, as distractions. These findings reinforce that observability is more of a cultural discipline.

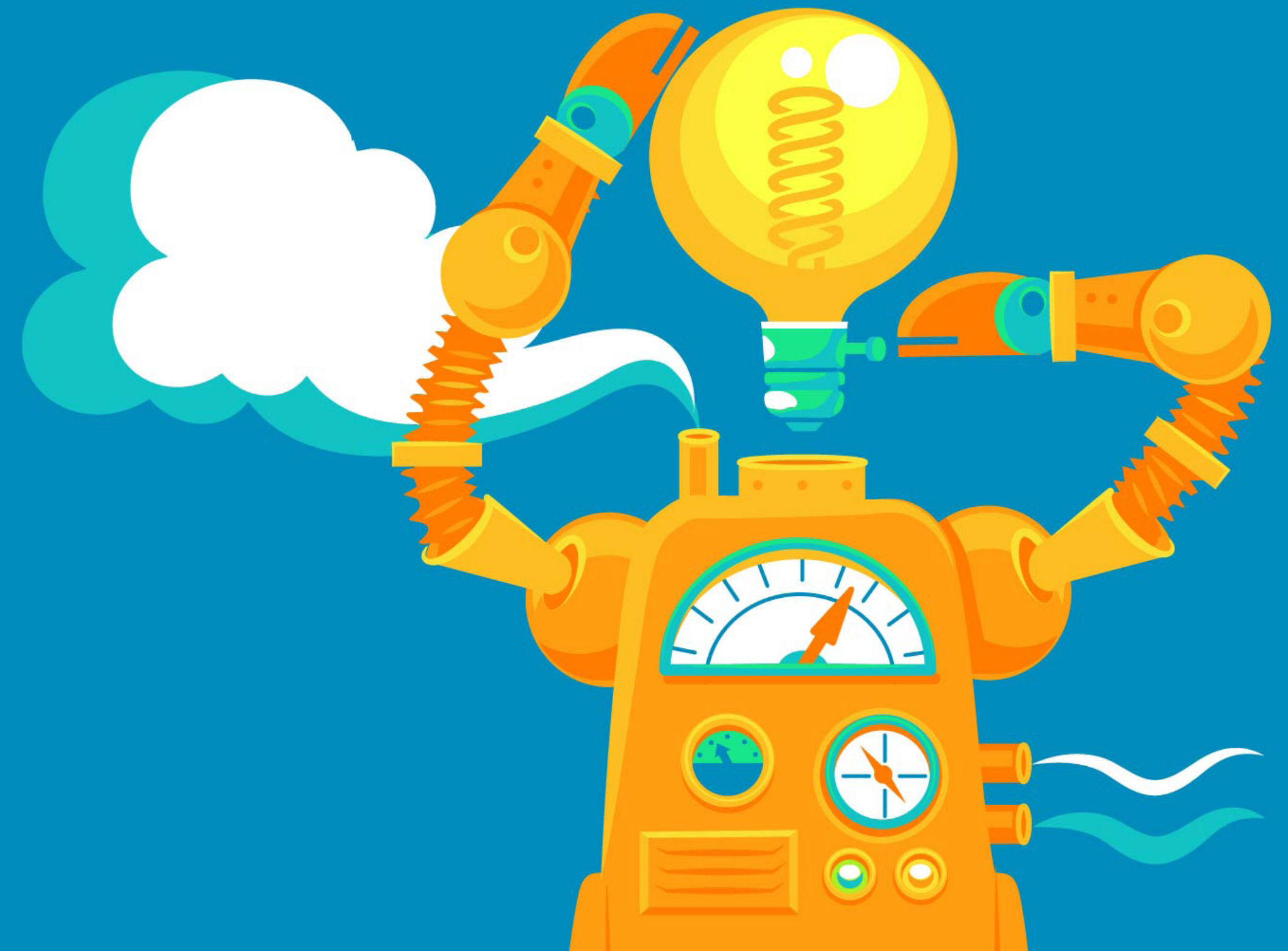


What we learned

As 2026 approaches, performance maturity will hinge on cultural fluency – the ability of teams to learn from their systems as much as they build them.

- **Expand performance metrics.** Move beyond uptime and incident counts to include operational cost, developer effort, and sustainability.
- **Embed observability in the culture.** Treat it as a strategy, not tooling. Integrate metrics into retrospectives, roadmaps, and investment decisions.
- **Bridge the AI monitoring gap.** Apply observability principles to AI and LLM systems to ensure reliability, traceability, and ethical use.
- **Rebalance innovation budgets.** Match AI enthusiasm with equal investment in engineering fundamentals.
- **Build performance stewardship.** Make performance a shared responsibility across product, platform, and leadership teams, not just SREs.

Organizations that treat observability and performance as continuous learning loops rather than reactive measures will define the next generation of engineering excellence.



Methodology

This report draws on a 2025 survey of engineering leaders and practitioners across industries conducted between **19 September** and **10 October 2025**, with **400 respondents across geographies and roles**.

