

2025

State of AI Innovation Report

250 tech leaders reveal how they're bridging the AI talent gap, measuring ROI, and investing their budget in 2025.



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In most companies, generative AI is full of contradictions. On one hand, 67% of business leaders predict that GenAI will transform their organization in 2025, according to a [KPMG survey](#). On the other, just 36% of executives say their company has a well-defined vision for AI.

Most every company wants to embrace AI. The big question is how.

Technical leaders face myriad challenges in moving GenAI initiatives forward. At A.Team and Riviera Partners, we've seen this first-hand in helping dozens of industry leaders infuse their teams with top technical talent to rescue GenAI initiatives from pilot purgatory. Entering 2025, we wanted to better understand the challenges of technical leaders and the investments they're making in 2025.

To understand what separates successful AI innovators from those stuck in endless pilots, we surveyed 250 senior product and engineering leaders responsible for managing product/engineering teams and leading AI initiatives at their organizations. This research provides an in-depth look into how they're structuring their teams, measuring ROI, and making specific technical investments in areas like LLM customization, AI infrastructure, and security.

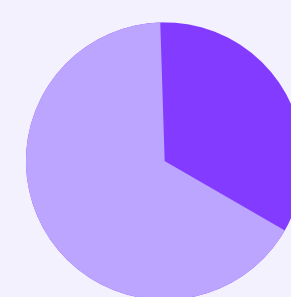
Amid predictions that AI could add \$9 trillion to the annual GDP, tech leaders across industries are dramatically increasing their investments in 2025—some by up to 75%. Yet a harsh reality remains: Only about a third of organizations have successfully deployed AI to production.

The challenges are both technical and organizational. While talent constraints are the primary barrier to AI innovation, leaders also grapple with critical decisions around building custom solutions versus buying off-the-shelf tools, scaling infrastructure, and achieving rapid ROI.

But some companies are breaking through.

The results reveal a clear pattern: Organizations that combine the right technical choices with new approaches to talent are dramatically outpacing their peers. Companies using blended teams—integrating specialized freelance talent with full-time employees—are twice as likely to reach advanced stages of AI innovation. And among companies successfully deploying AI to production, most say building custom solutions delivers more value than off-the-shelf tools.

**Only 36% of organizations have
successfully deployed AI to production.**



The findings offer a comprehensive look at:

- The technical and talent strategies separating AI leaders from laggards
- Why traditional hiring models are breaking down—and how top CTOs are building teams that ship AI faster
- Which AI investments are delivering the fastest ROI (and which are falling short)
- Where tech leaders across 27 industries are placing their bets in 2025



A.Team surveyed 250 tech leaders in the U.S. between Dec. 5–11, 2024. Respondents were qualified as being responsible for managing product/engineering teams and leading AI initiatives at their organizations. 60% represent enterprise organizations (1,000+ employees), 20% are mid-market companies (250–999 employees), with the remaining 20% representing the SMB and startup ecosystem.

Key Findings

1. Most tech leaders (94%) believe that talent constraints are the primary factor slowing AI initiatives; 85% have had to pause or extend the timeline of AI initiatives due to talent shortages.
2. However, 88% have had difficulty attracting the talent they need through traditional hiring or IT services, so they're turning to freelancers or fractional talent. 92% expect engagements with this flexible talent pool to increase in the next 24 months.
3. Over three-quarters of tech leaders (77%) already have a blended team model that integrates freelancers with full-time employees, and these organizations are two times more likely to have reached advanced stages of AI innovation.
4. For companies at an advanced stage of AI innovation, 93% say that building custom GenAI products delivers more value than buying GenAI tools off the shelf.
5. Despite talks of an "AI Trough of Disillusionment," 96% of tech leaders expect to increase investment in GenAI initiatives in 2025, with the majority planning an increase of over 50%.

Companies using blended teams—integrating specialized freelance talent with full-time employees—are twice as likely to reach advanced stages of AI innovation.

The Talent Crisis

94%

say talent constraints are their primary barrier to AI innovation

85%

have delayed critical AI initiatives due to talent shortages

88%

struggle to attract talent through traditional channels

The Rise of Blended Teams

77%

have adopted blended teams, integrating freelancers with full-time employees

2X

more likely to reach advanced AI stages with blended teams

92%

plan to increase freelance engagements in the next 24 months

The Path to Production

93%

of AI leaders say that building custom products delivers more value than buying off-the-shelf

96%

increasing AI investment in 2025

52%

planning increases of 51%+

Part I: The Traditional Hiring Model is Breaking

- 94% of tech leaders say talent constraints are the primary factor slowing AI initiatives, with 85% having to pause or extend timelines due to talent shortages
- The most critical capability gaps are in practical AI deployment: 53% need GenAI infrastructure design skills, while 48% struggle with LLM quality testing
- Hiring remains a massive challenge: 67% of leaders say it takes 4+ months to hire top engineering talent, while 88% report difficulty bringing on talent through traditional channels

In 2024, Generative AI officially entered Gartner's famed Trough of Disillusionment. It was easy to see this coming. While large companies are eager to embrace AI, with some saving hundreds of millions through successful use cases, most fail to move beyond pilots. In survey after survey, corporate leaders identify the same critical barrier: talent.

Our research confirms this reality. Among tech leaders surveyed, 94% say talent constraints are the primary factor slowing their AI initiatives. The impact is severe: 85% report pausing or extending critical AI initiatives due to talent shortages, while 82% worry about losing the AI talent they already have.

94%

say talent constraints are a primary barrier to AI innovation

85%

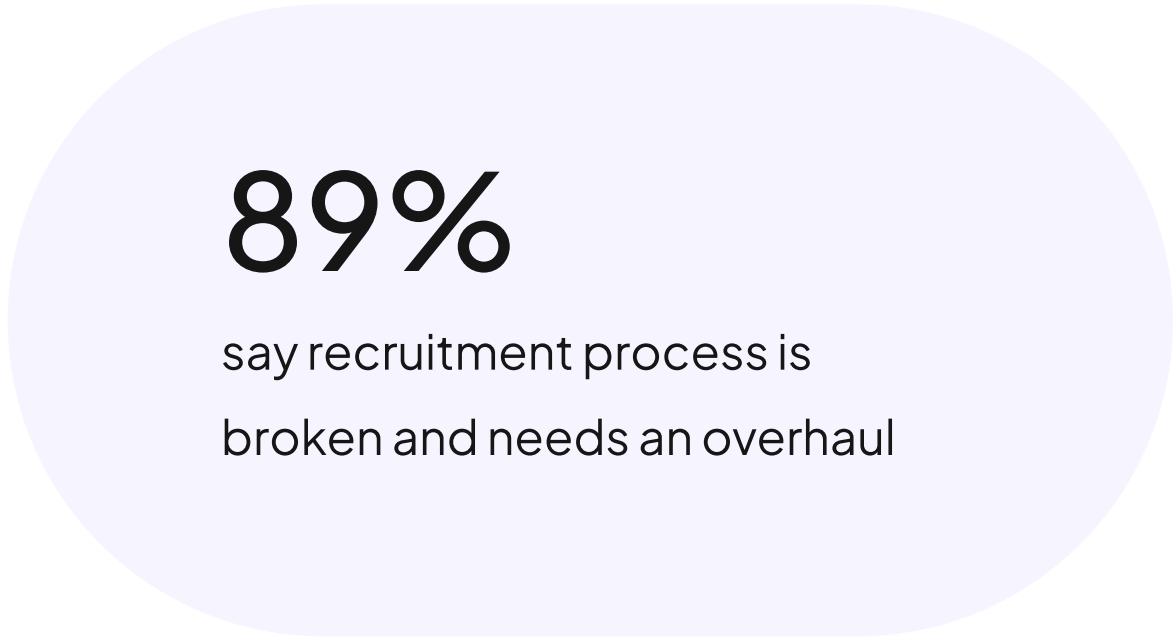
have delayed AI initiatives due to talent

82%

are worried about losing existing AI talent

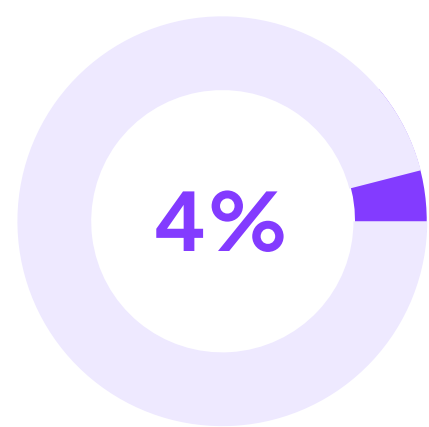
The challenge is more complex than a simple shortage of AI talent. For most organizations—particularly those in non-tech industries—GenAI requires a monumental mindset shift. While IT teams excel at buying and integrating software, capitalizing on GenAI's full capabilities means creating custom solutions that leverage their unique data and domain expertise.

This transition is exposing critical gaps in traditional IT organizations. Companies that have figured out strong generative AI use cases are saving hundreds of millions of dollars, but most companies' existing teams aren't built to make the kind of sharp turn that GenAI requires.

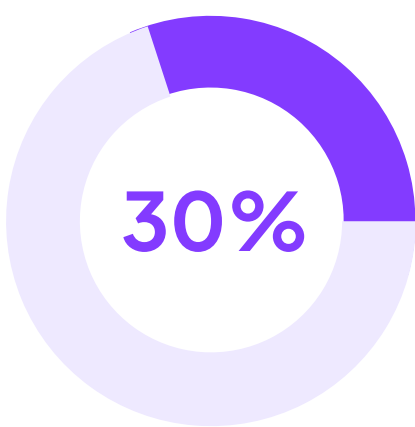


The traditional hiring model is collapsing under these pressures. When asked about their recruitment process, 89% of leaders say it needs a complete overhaul. The timeline to hire reflects this broken system: 67% of leaders say it takes 4+ months to hire top product and engineering talent.

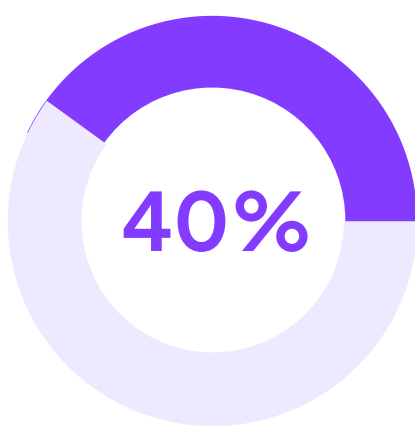
On average how long does it take you to hire top product and engineering talent?



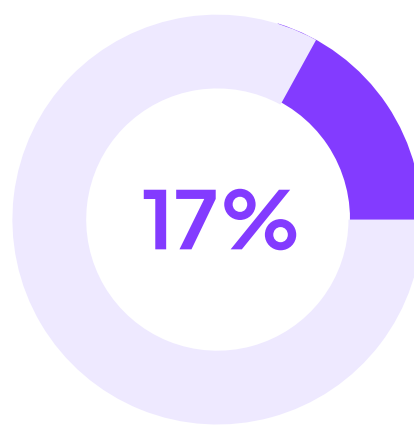
Less than 1 month



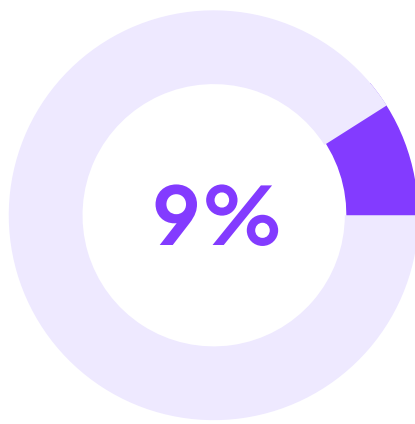
1-3 months



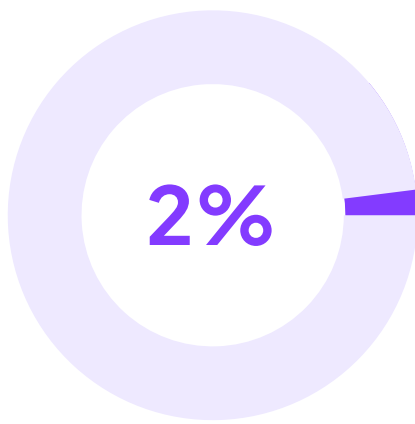
4-6 months



7-9 months



10-12 months



More than 12 months

These protracted hiring cycles are particularly problematic in AI development, where technology evolves at a breakneck pace — rendering traditional workforce planning obsolete as new possibilities emerge and roadmaps change. In 2025, it’s hard to know the exact skills you will need in six months.

The skills that leaders would most like to up-level on their teams reflect this fundamental challenge. When asked about critical capability gaps, leaders pointed to practical AI deployment skills that reflect the challenge of escaping “Prototyping Purgatory” and moving GenAI initiatives into production:

Which Gen AI skills and capabilities would you like to improve on your team?



Most leaders are struggling to infuse their teams with these skills via the traditional hiring model; 88% of leaders report difficulty bringing on the talent they need through traditional hiring or IT services. This crisis is pushing tech leaders to fundamentally rethink how they build their teams. When asked about alternative strategies, 89% say they're more likely to use freelance AI talent than compete with big tech for full-time hires. That is partly because of the infusion of skills that bringing in freelance or fractional talent delivers; 87% say it is easier to bring in freelancers with specialized talent and skills than it is to upskill existing employees.

94%

say freelance talent is vital to their business

92%

expect to increase freelance engagements in the next 24 months

89%

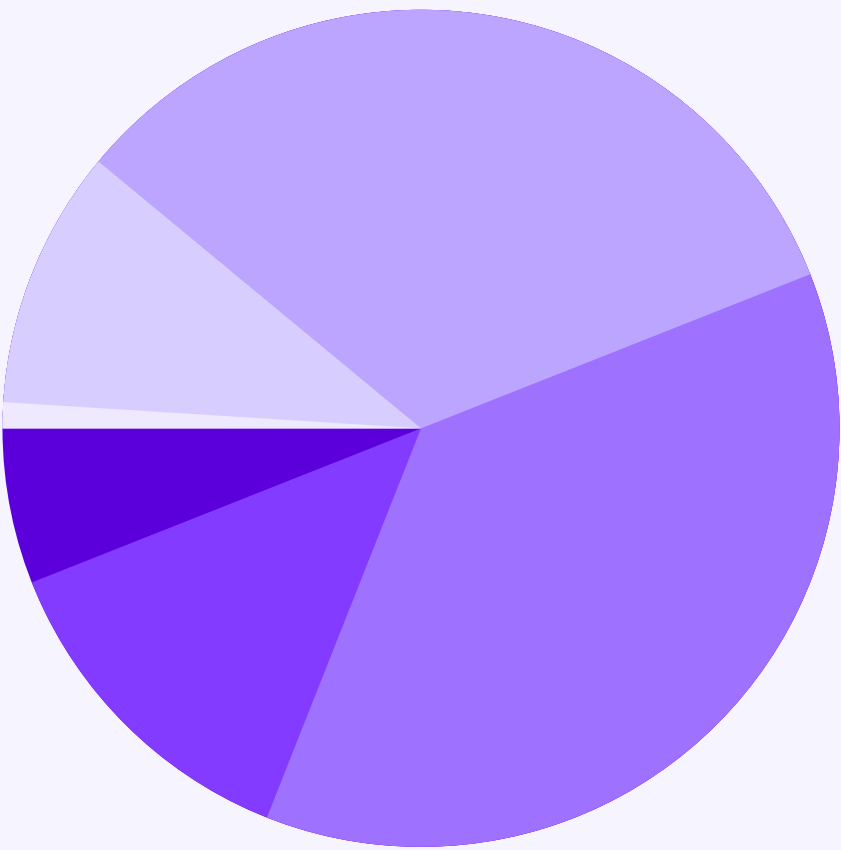
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87%

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The shift to a more flexible workforce is already well underway. Our research found that freelancers now make up more than 25% of product teams in over half of organizations, and 94% of leaders say that freelance and fractional talent is vital to their business.

What percentage of your product team is composed of freelancers or fractional talent?



None	1%
1-10%	10%
11-25%	33%
26-50%	37%
51-75%	13%
76-100%	6%

But as we'll see in Part II, the companies having the most success with AI aren't just using freelancers as a stopgap measure. They're fundamentally reimagining how they structure their teams for the AI age.

Part II: Blended Teams Are Breaking Through the AI Barrier

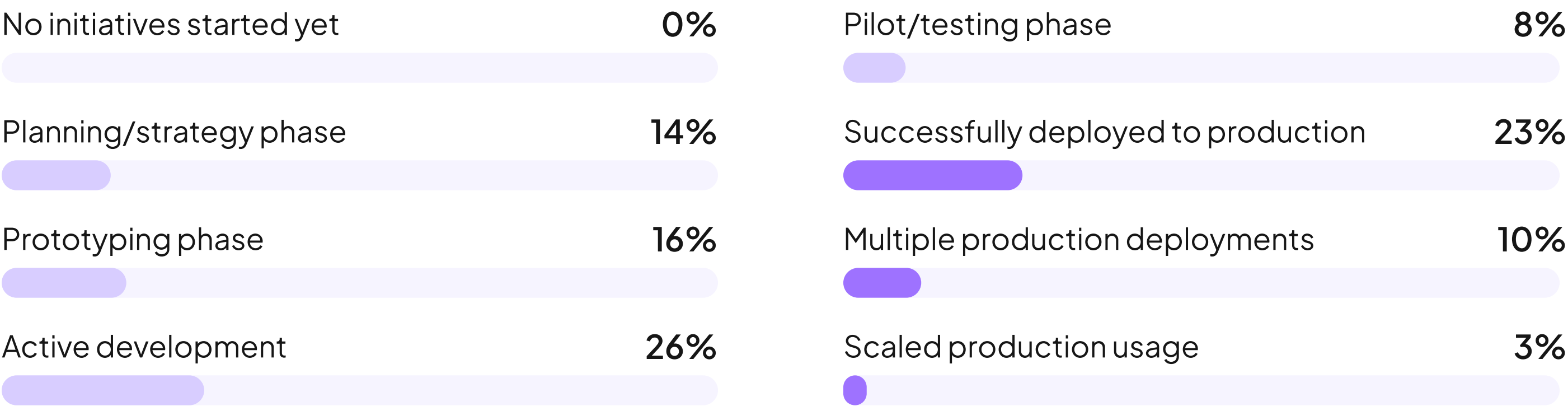
- Organizations with blended teams are 2× more likely to reach advanced stages of AI innovation than those with traditional structures.
- These companies report overwhelming success: 99% improved innovation capability, 98% better project success rates, and 96% faster delivery.
- The key is pairing specialized freelance builders with full-time technical leadership—77% have already adopted this model, with 10% more planning to do so in 2025.

On January 27, the launch of DeepSeek-R1, an open-source Chinese LLM trained for a small fraction of the cost of OpenAI or Anthropic’s foundational models, sent tech stocks momentarily plummeting as investors worried about the MOAT of prominent companies like NVIDIA.

In response, Writer CEO May Habib wrote that the reaction was insane. Investors were missing the real story. “The real insanity is how good the models are already and how little the transformation is at most companies ... the vast majority of companies have not seen significant ROI on their investments.”

Habib is right. While the underlying technology continues to advance at a dizzying pace, most organizations are stuck in “Prototype Purgatory,” producing demos that appear impressive but are not practical to deploy. This is the real hurdle to get over. Our research reveals that only 36% of organizations have successfully deployed an AI product to production.

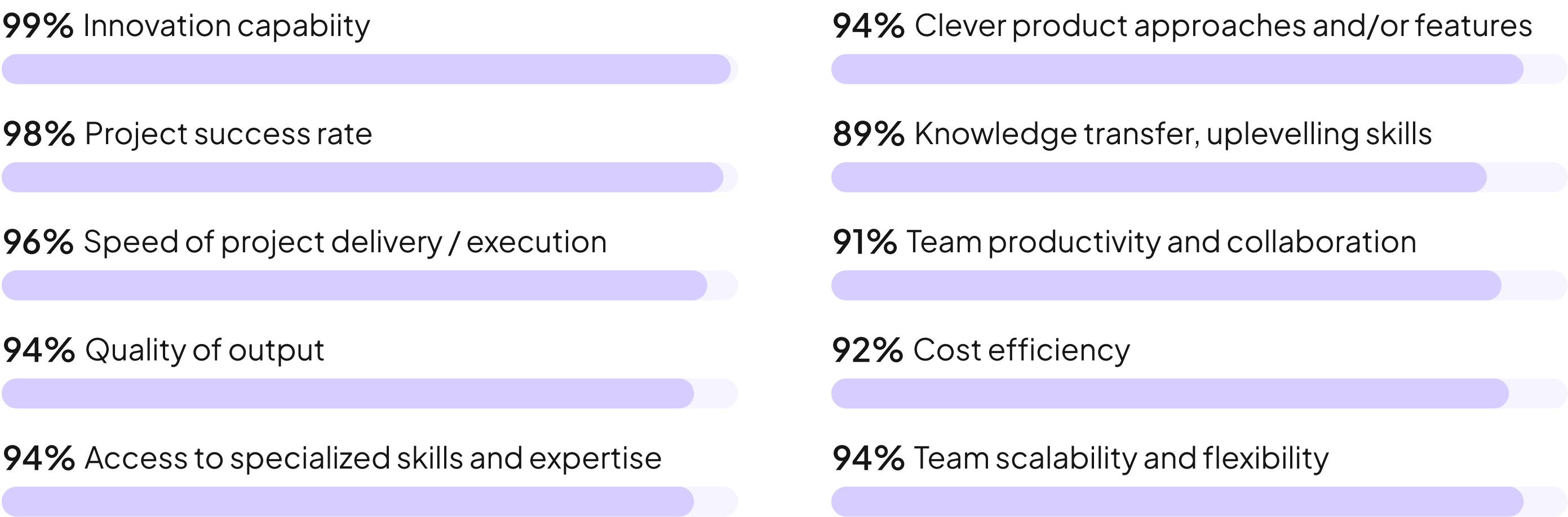
What is the most advanced stage of AI innovation your organization has reached?



The companies reaching this “advanced” stage have something in common: they’re leveraging a new team model, known as “blended teams,” that combines specialized freelance talent with full-time employees to supercharge innovation.

Among the 77% of organizations using blended teams, 40% have successfully deployed AI to production or achieved scaled usage—double the success rate of companies relying solely on traditional structures. When asked about the impact, leaders report improvements across every dimension:

Has bringing on freelance technical talent positively improved the following aspects of your team?

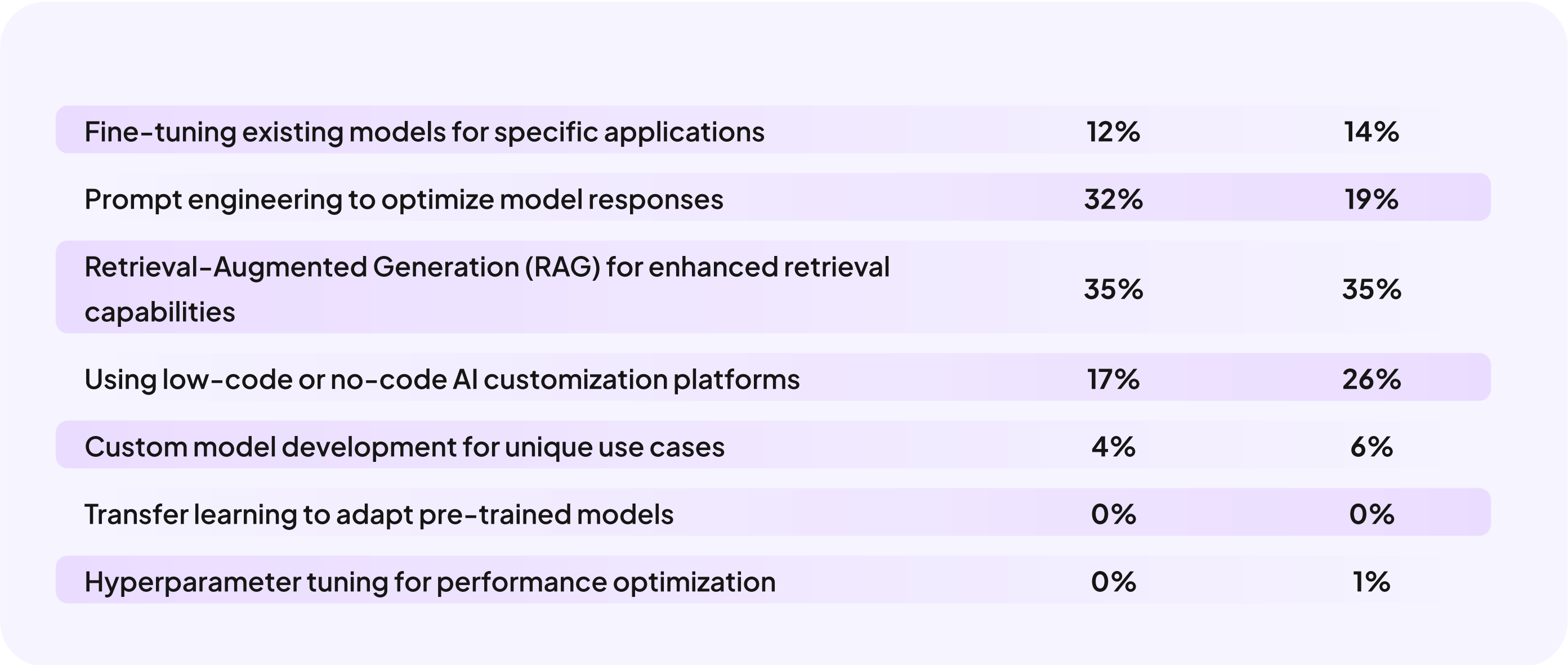


This success stems from solving a fundamental challenge: Most organizations—even some tech companies—no longer have the builder DNA inside their teams to develop new products from zero to one. While IT departments excel at buying and integrating software, AI requires a different mindset. It demands teams that can rapidly prototype, test, and iterate on custom solutions.

“I don’t think workforce planning is going to be a term we use,” said AJ Thomas, former Chaos Pilot at GoogleX and Founder & CEO of The Troublemaker Lab. “Even though we use those words, we don’t do that right now. Then it changes because the pace of business has changed. I think what’s needed is talent agility — communities of talent like A.Team that allow us to come together and create blended teams.”

The data reveals why this model works. Blended teams combine specialized freelance builders who’ve led multiple AI deployments—and know the pitfalls that lurk around the corner—with full-time technical leadership who understand the business context. Both are crucial; generative AI is digital transformation on steroids and is nearly impossible to move forward without internal champions that mix business savvy with technical expertise to push key initiatives forward. When asked about technical priorities, companies with successful AI deployments show a clear pattern: Organizations at advanced stages of AI maturity were much more likely to favor custom model development and transfer learning to prompt engineering and low code solutions.

Which of the following GenAI customization approaches are you using?



The Blended Teams Model also solves a critical flexibility challenge. Traditional workforce planning becomes nearly impossible when technological capabilities shift every few months. Instead of trying to hire full-time employees for specific technical needs, leading organizations are building fluid teams that can adapt as quickly as the technology. Ninety-three percent of leaders say bringing on freelancers or fractional talent gives their business greater agility, and 91% report faster progress on AI initiatives working with freelancers than with traditional hiring or IT services. This is likely why 92% of leaders expect to increase their use of fractional talent in the next 24 months.

Most organizations—even some tech companies—no longer have the builder DNA inside their teams to develop new products from zero to one.

Agree



The results speak for themselves. Of organizations that have achieved multiple production deployments, 60% identify strong talent as one of the top three factors in their success. As one leader put it, "We need multidisciplinary people—folks who could assemble as a team because they were going after a moonshot."

This constant evolution highlights why the flexible staffing of blended teams proves so valuable. Rather than trying to predict AI talent needs months in advance, organizations can rapidly integrate specialized skills as new use cases emerge. It's a model built for the pace of AI innovation.

Part III: The Path to Production: What Leading AI Innovators Do Differently

- For companies that have successfully deployed AI to production, 93% say building custom solutions delivers more value than off-the-shelf tools.
- They're investing heavily in fundamentals: 50% prioritizing AI safety tools, 41% focused on data infrastructure.
- 12% have already achieved ROI from custom AI product development, and 67% expect ROI in the next year.

Among companies that have successfully deployed AI to production, 93% say building custom solutions delivers more value than off-the-shelf tools.

Tech leaders face a fork in the road with AI that may separate winners and losers over the next five years.

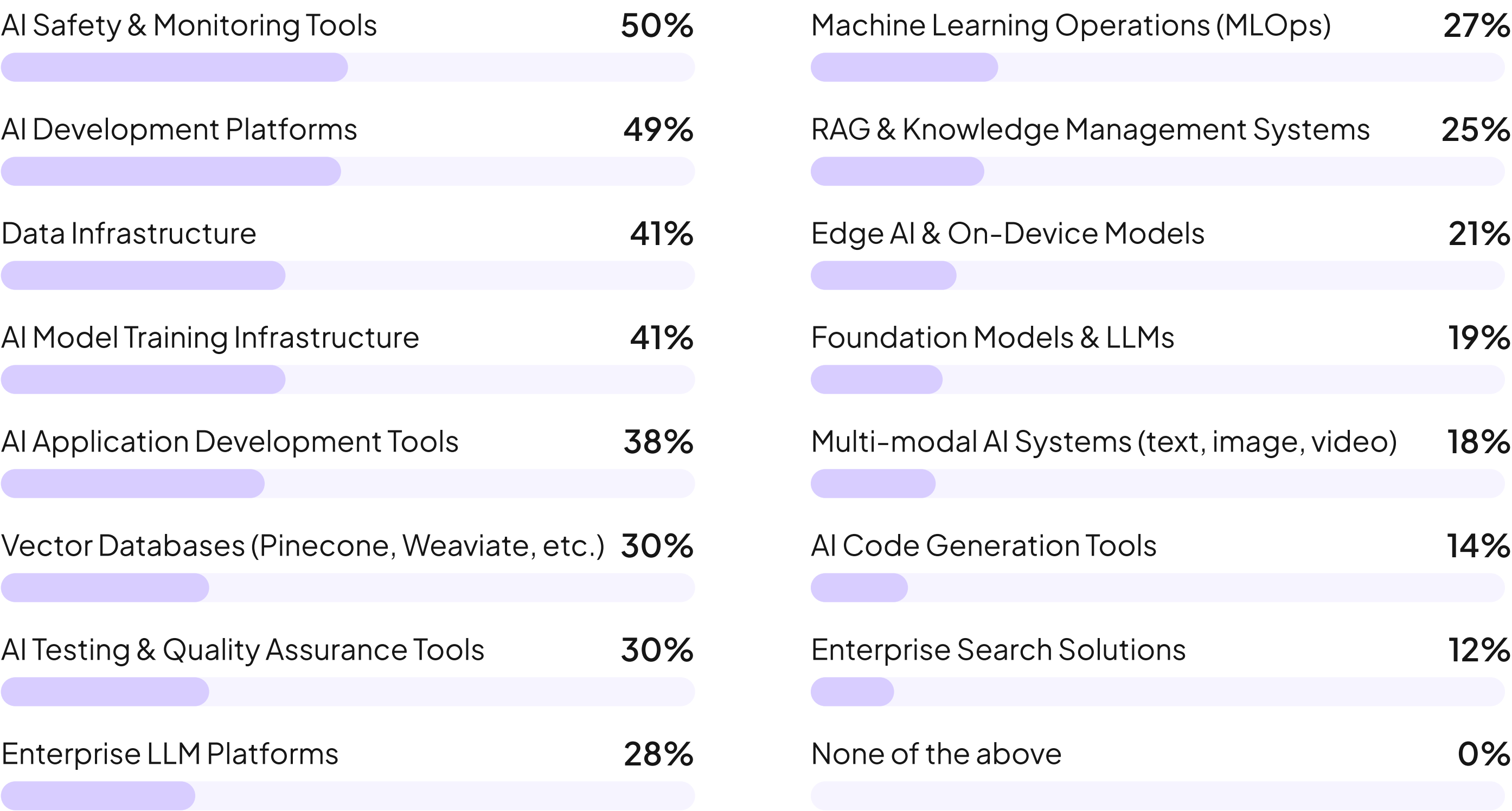
The "Buy" path—purchasing and implementing off-the-shelf AI tools—might seem like the safe choice. After all, it's how most IT organizations are set up to operate: buy software, integrate it with existing workflows, and roll it out to the team.

But our research reveals a different story. Among companies that have successfully deployed AI to production, 93% say building custom solutions delivers more value than off-the-shelf tools. This conviction grows stronger with experience—organizations that have reached production are 1.67x more likely to strongly agree compared to those still in pilot phases.

What separates companies that successfully move from pilots to production? Our data reveals several key patterns.

First, they focus on fundamentals. When asked about technical investment priorities for 2025:

What platform components and tools do you expect to increase your investment in 2025?



This emphasis on infrastructure and fundamentals reflects a mature understanding of what it takes to deploy AI in production. Successful organizations recognize that robust data pipelines, monitoring systems, and development platforms are the bedrock of sustainable AI initiatives. With many of these components available open-source, we’ve seen a trend of successful organizations taking an "assemble" approach—leveraging open-source building blocks and proven components while customizing them for specific use cases.

As we showed on page seven, the specific capabilities leaders are looking to improve on their teams reflect this focus on production readiness:

53%

GenAI Infrastructure Design

48%

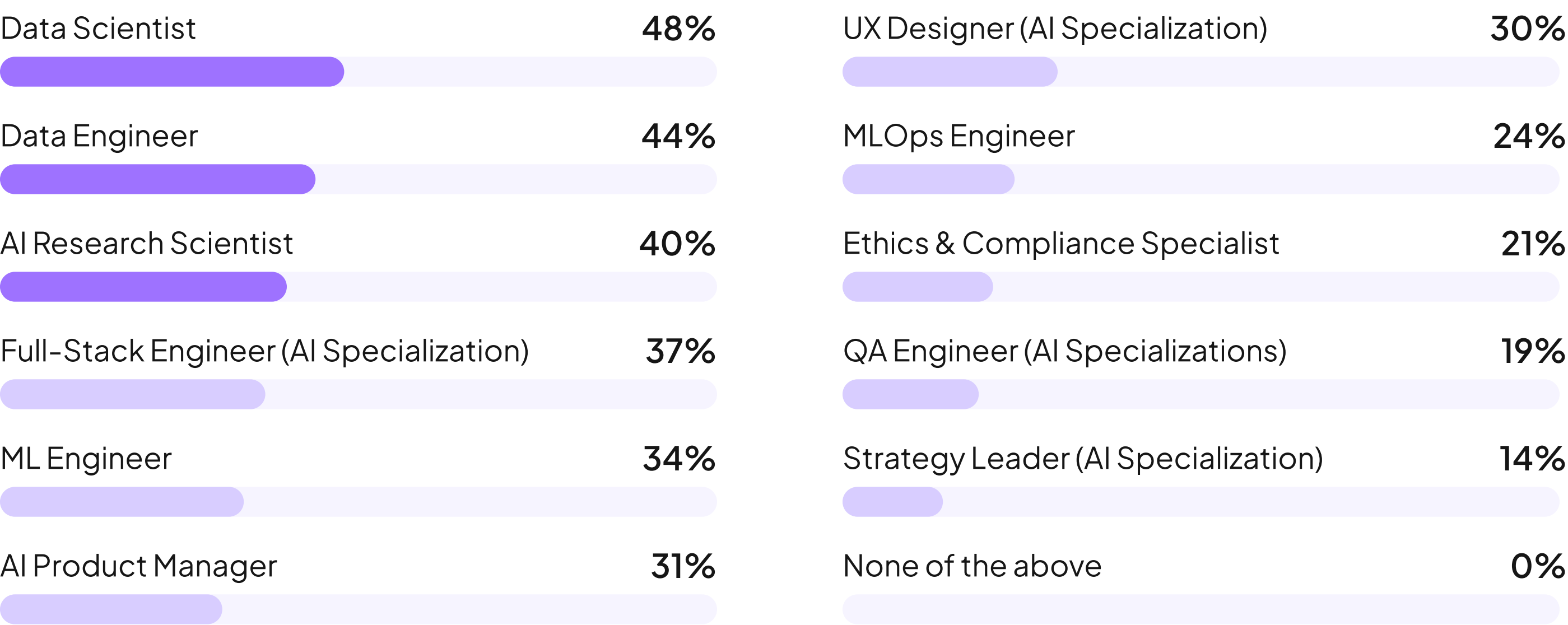
LLM Quality Testing

45%

LLM Customization

These aren't just theoretical skill gaps. When asked about the technical roles most challenging to fill, leaders identified data-focused roles (data scientist, data engineer, AI research scientist) as the top three.

Which technical talent has been the toughest to find and recruit?



The pattern is clear: organizations need people who can not only build AI systems but also properly architect, test, and maintain them at scale. This talent shortage helps explain why companies are focusing heavily on infrastructure and foundational capabilities for 2025.

Looking at current AI capabilities versus future priorities reveals another interesting trend:

For each AI feature/platform, indicate your organization’s current capability and priority level for 2025.

		2025 Priority	Not a 2025 Priority
Document Processing & Intelligent Summarization (Automating document handling, analysis, and summarization for enhanced productivity)	Advanced capability currently	46%	29%
	Basic capability currently	20%	2%
	No capability currently	2%	0%
	Total	68%	32%
AI-Driven Personalization & Hyper-Personalization Engines (Tailoring user experiences and content recommendations based on individual preferences and behaviors)	Advanced capability currently	30%	47%
	Basic capability currently	18%	4%
	No capability currently	1%	0%
	Total	49%	51%

2025
Priority

Not a 2025
Priority

Generative AI & Chatbot Development
(Creating and deploying conversational AI for customer support, content generation, and interactive user experiences)

Advanced capability currently	30%	28%
Basic capability currently	36%	3%
No capability currently	2%	1%
Total	68%	32%

Predictive Analytics & Forecasting (Leveraging AI to predict trends, consumer behavior, and demand across various business functions)

Advanced capability currently	27%	32%
Basic capability currently	32%	9%
No capability currently	0%	0%
Total	59%	41%

Fraud Detection & Risk Management (Using AI to identify fraudulent activities and manage potential risks in real-time)

Advanced capability currently	31%	26%
Basic capability currently	30%	9%
No capability currently	4%	0%
Total	64%	36%

AI Monitoring, Evaluation & Security Management (Ensuring the accuracy, fairness, and security of AI models, including tracking and managing potential biases)

Advanced capability currently	28%	33%
Basic capability currently	28%	7%
No capability currently	4%	0%
Total	60%	40%

Natural Language Processing (NLP) for Text & Sentiment Analysis (Analyzing text for sentiment, themes, and insights to better understand customer feedback and needs)

Advanced capability currently	32%	33%
Basic capability currently	26%	4%
No capability currently	3%	2%
Total	61%	39%

2025
Priority

Not a 2025
Priority

Robotic Process Automation (RPA) & Intelligent Process Automation (Streamlining repetitive tasks and workflows through automation and AI-driven decision-making)

Advanced capability currently	31%	40%
Basic capability currently	19%	6%
No capability currently	3%	1%
Total	53%	47%

Supply Chain & Logistics Optimization (Improving efficiency in inventory management, logistics, and supply chain through predictive AI and optimization) (I)

Advanced capability currently	30%	32%
Basic capability currently	30%	5%
No capability currently	3%	1%
Total	63%	37%

AI-Enhanced Compliance & Regulatory Auditing (Supporting regulatory compliance and auditing processes with AI for data accuracy, risk management, and reporting) (J)

Advanced capability currently	33%	32%
Basic capability currently	26%	7%
No capability currently	0%	1%
Total	60%	40%

What's particularly telling is that 49% of companies with advanced capabilities are still prioritizing development in 2025, suggesting that even organizations succeeding with AI recognize they're still early in their journey.

This long-term mindset is reflected in ROI expectations and achievements. While 32% of leaders expect ROI from custom AI development in under 6 months, current achievement rates tell a more sobering story:

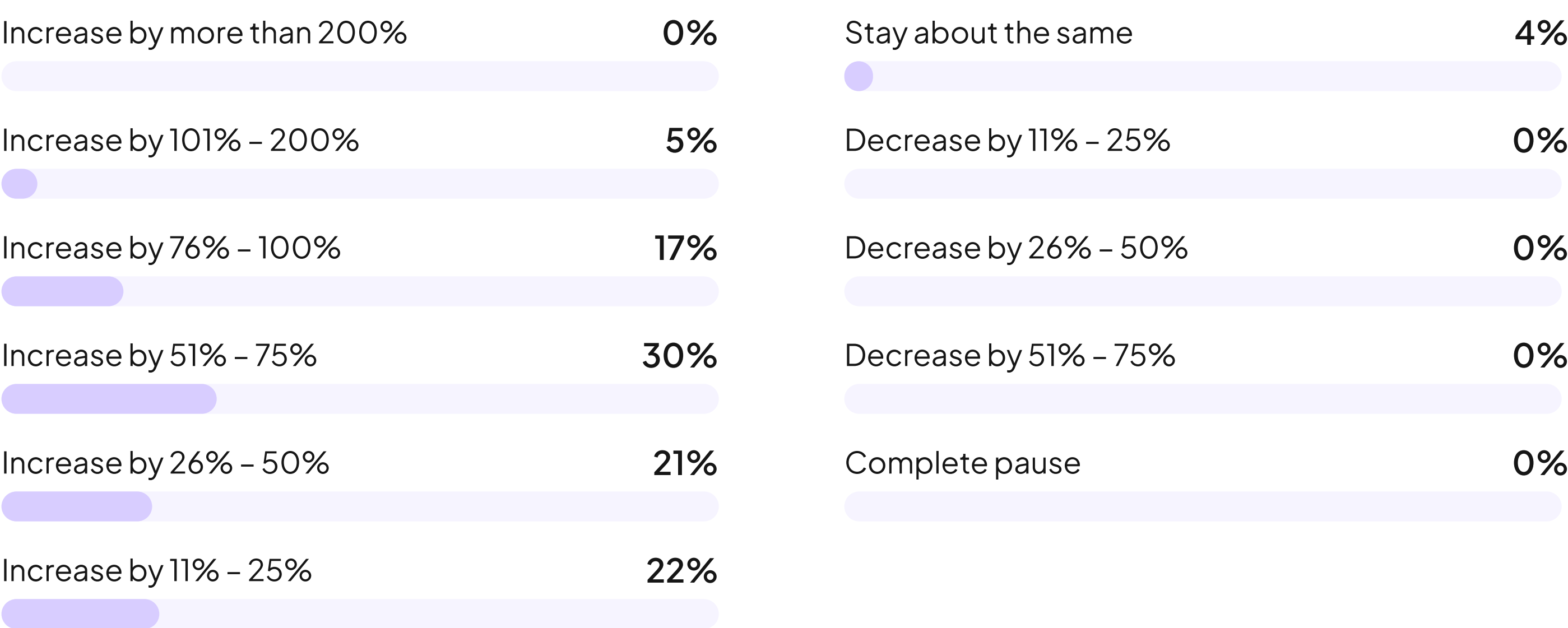
For each generative AI initiative, indicate your expected ROI timeline:

	Custom AI product development	AI-powered automation	Customer-facing AI features	Internal AI tools
ROI already achieved	12%	14%	7%	8%
<6 months	32%	19%	24%	27%
6–12 months	35%	35%	37%	38%
1–2 years	17%	26%	24%	22%
2+ years	4%	6%	6%	5%
No ROI expected	0%	0%	0%	1%
Not applicable / Not pursuing	0%	1%	1%	0%

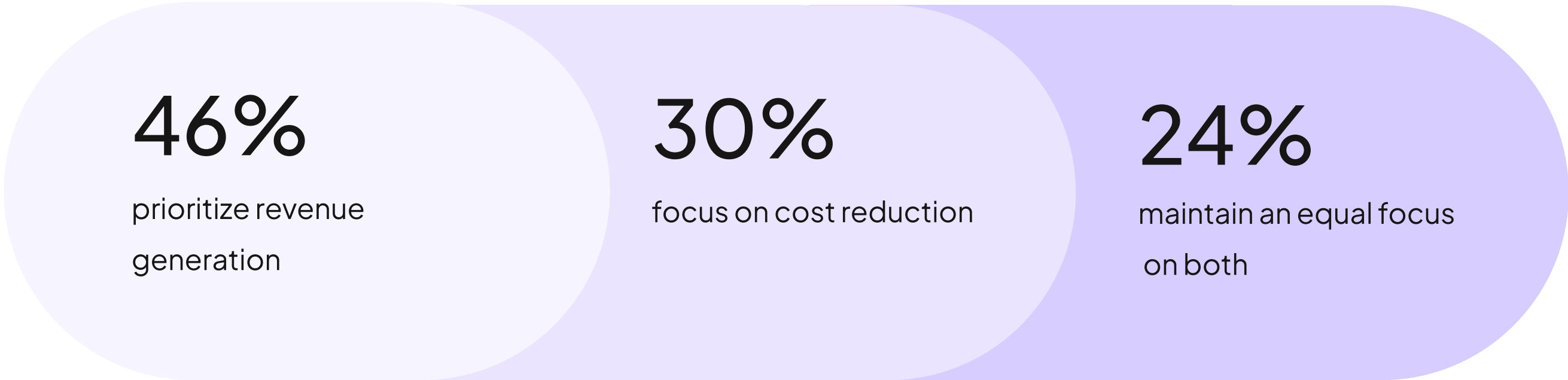
The gap between expectation and reality isn't surprising to experienced technical leaders. Production-grade AI requires more than just model development—it demands robust data infrastructure, monitoring systems, and deployment pipelines. Companies often underestimate the foundational work needed to move from successful pilots to reliable production systems.

Yet, we're seeing investment increase at a torrid pace. Organizations are backing these initiatives with significant resources: 96% expect to increase AI spending in 2025, with more than half planning increases over 50%. Notably, across 27 industries surveyed, not a single organization plans to decrease investment.

How do you expect your organization's investment in GenAI initiatives will change in 2025?



The shift toward revenue generation over cost reduction is particularly significant. When asked about their primary objective:



We found the emphasis on revenue generation surprising. The common narrative around GenAI is targeting cost savings through automation. However, our research reveals a more ambitious mindset taking hold. Leading organizations now see AI as a catalyst for new product development and enhanced customer experiences. They're not just looking to do the same things more efficiently—they're aiming to do entirely new things that weren't possible before.

Looking forward

The gap between AI ambition and achievement isn't primarily a technology problem—it's a question of approach. While 32% of leaders expect ROI from custom AI product development within 6 months, only the organizations willing to invest in foundational capabilities and rethink their talent strategy are breaking through to production.

Our research reveals a clear pattern in what separates successful AI innovators from those stuck in endless pilots. Success requires moving beyond the comfortable "buy and integrate" mindset that most IT organizations are built around. The most effective organizations combine specialized builders who know how to ship AI products with strong technical leadership who understand the business context. They're not just buying the latest tools—they're assembling custom solutions using proven components and focusing on practical applications that can deliver real value.

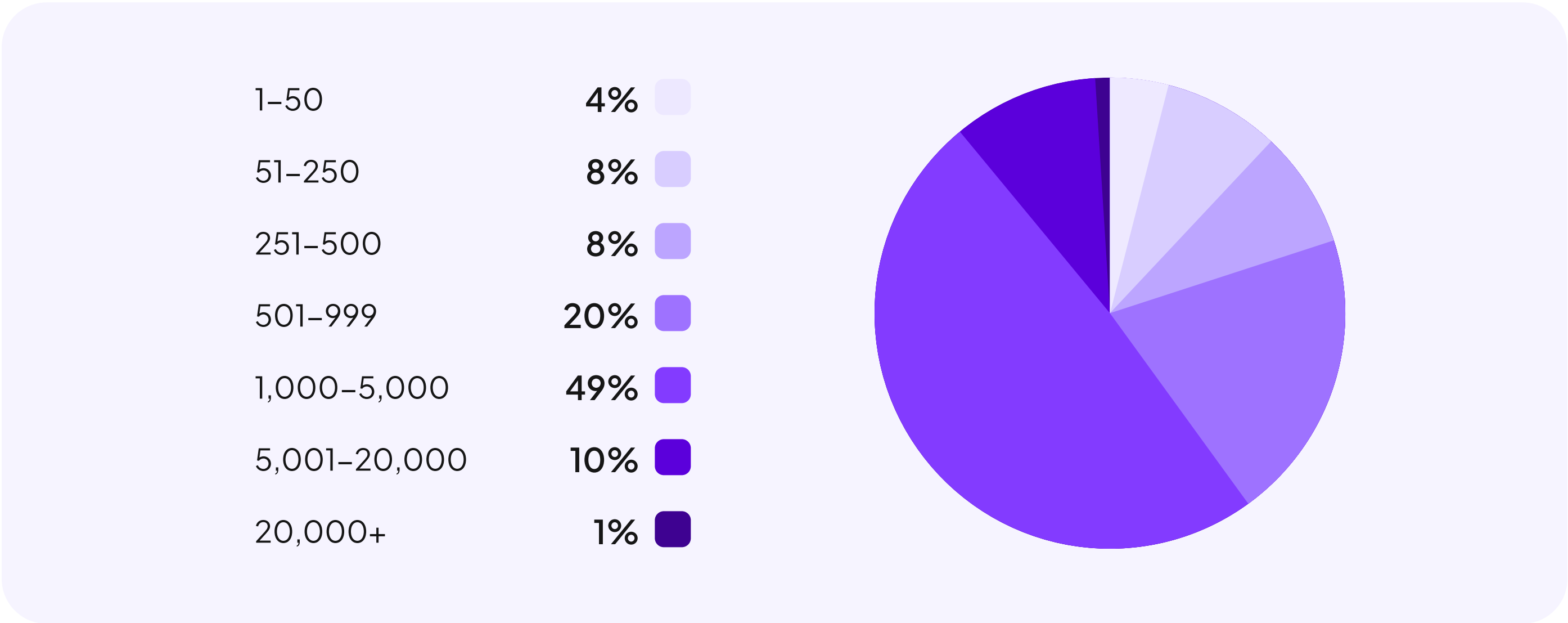
The investment priorities for 2025 reflect this pragmatic approach. Rather than chasing the latest large language models, leaders are focused on the unglamorous but essential foundation: development platforms, monitoring tools, and scalable infrastructure. They're backing these priorities with significant resources—96% increasing investment, some by up to 75%—but with a clear-eyed focus on revenue-generating applications rather than cost reduction.

The road ahead isn't easy. Building production-grade AI systems requires different skills and mindsets than traditional IT. However, organizations that can successfully pair the right talent with the right technical approach are showing that it is possible to move from perpetual prototype mode to practical deployment. The key is recognizing that AI success isn't about having access to the latest models—it's about having the right combination of talent and infrastructure to put those models to work.

Methodology Appendix

Research Design & Sample A.Team surveyed 250 tech leaders in the U.S. between December 5–11, 2024. Respondents were qualified as being responsible for managing product/engineering teams and leading AI initiatives at their organizations.

Company Size



Industry

