



IndustryWeek.

The State of Production Health 2025

Production-oriented AI is advancing beyond pilots and toward a connected enterprise. What are the implications for manufacturing amid industry uncertainty?

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The State of Production Health 2025

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INTRODUCTION

Our third annual study of 500 manufacturing executives in the U.S. and Europe captures the promises, contradictions, and challenges that reflect the state of the world itself, with the use of AI becoming more mature even as manufacturers wrestle with capacity, cost, and workforce issues.

This year's State of Production Health survey captured insights during volatile times in the industry, with high interest rates, inflationary pressures, recession fears, and rapidly vacillating tariffs causing uncertainty in every sector. A few major themes stood out.

1. Short-term uncertainty not dampening long-term optimism

Specifically, the study finds 96% of respondents believe fears of a recession will put further pressure on manufacturers to cut costs, and 95% are concerned that U.S. tariffs/retaliatory actions will impact manufacturing.

Yet, despite disruption, manufacturers are overwhelmingly optimistic—96% expressed confidence in the future of industry. That optimism could stem from a forward-thinking mindset: manufacturers are increasingly aligning AI investments with long-term objectives and process improvement efforts rather than focusing on the crisis of the moment. When asked about their top manufacturing challenges, capacity constraints topped the list, followed by the high cost of materials. Together, these concerns may suggest an underlying concern about economic disruption. But when asked about where they want AI

to help their manufacturing operation, answers were more overarching, with top answers including:

- Improving quality, yield, and throughput
- Breaking down department silos
- Managing the cost of materials/energy

2. AI growth and confidence is masking an AI problem

Those planning to significantly increase AI spending dropped slightly versus 2024, but those suggesting expenditures would remain the same increased. However, this trend reflects progress rather than pullback: three times as many manufacturers have now rolled out AI solutions across their entire enterprise, exiting “pilot purgatory” and shifting from experimental investments to scaled, sustained use.

From one angle, overall confidence is impressive: 90% rate their TPM program as effective, 92% rate their organization's ability to meet its full production potential as excellent, and 83% say they are advanced or very advanced at adopting AI use cases for solving specific production problems.

But looked at in the context of ongoing challenges, those numbers suggest a false confidence—a dangerous state of mind that might be blinding organizations to trouble areas. Consider that:

- Machine health ranks first in how manufacturers are leveraging AI but seventh when it comes to quantifying its impact

- Capacity issues, material costs, and workforce issues ranked as top manufacturing challenges—issues that will likely only get worse this year
- Digital transformation and change management topped the list of problems that could limit their ability to meet production goals, which suggests organizations are struggling to establish a basic foundation for AI adoption and value creation

There's a perception gap here, with AI tech being enthusiastically accepted as a concept across organizations, but at the same time not solving real plant-floor issues or transforming work practices. It's possible that the pressure to move fast is being prioritized over finding, adopting, and quantifying AI in purposeful ways.

3. The future state of manufacturing requires holistic ecosystems and internal structure

Manufacturing is undergoing a profound shift where success hinges not merely on technology adoption, but on creating interconnected ecosystems and robust internal frameworks. In this year's survey, digital change management has surpassed supply chain concerns as manufacturers' primary limitation in meeting production goals. Meanwhile, the inability to connect vendors to existing ecosystems ranks as the second most significant challenge, highlighting how fragmented systems impede progress.

Manufacturers also recognize that PdM-OEM partnerships could yield widespread benefits, but these opportunities remain largely untapped. The data exposes a critical gap between OEM engagement and machine health monitoring—manufacturers are generating more insights than ever, yet

ecosystem disconnections prevent their effective utilization. This disconnect manifests in two dimensions: first, within organizations where siloed teams struggle to collaborate; second, across industry networks where disparate vendors create integration headaches—both effectively halting transformation initiatives before they gain momentum.

The future state demands not just technological implementation but thoughtful ecosystem development and organizational structure that enables seamless data flow, collaboration, and continuous improvement across all manufacturing dimensions.

4. Workforce issues persist, but so does hope for AI solutions

Manufacturers are still working to identify how best to empower their workforce with AI tools. As 2.8 million workers near retirement and exit the manufacturing labor force, AI not only offers a path to preserve critical domain knowledge and help remaining employees do more with less, but 97% of manufacturing leaders believe AI and tech will create new jobs. Though, industrial leaders identify resistance from potential AI end users and IT skills shortages as the top roadblocks for AI adoptions in 2025.

Interestingly, respondents see AI as both a challenge and a solution in this regard: 99% of respondents say adopting advanced technology will positively impact their upskilling efforts. This near-unanimous consensus underscores that those who lead the future of manufacturing will be the ones who invest in AI and their people in equal measure.

PART ONE:

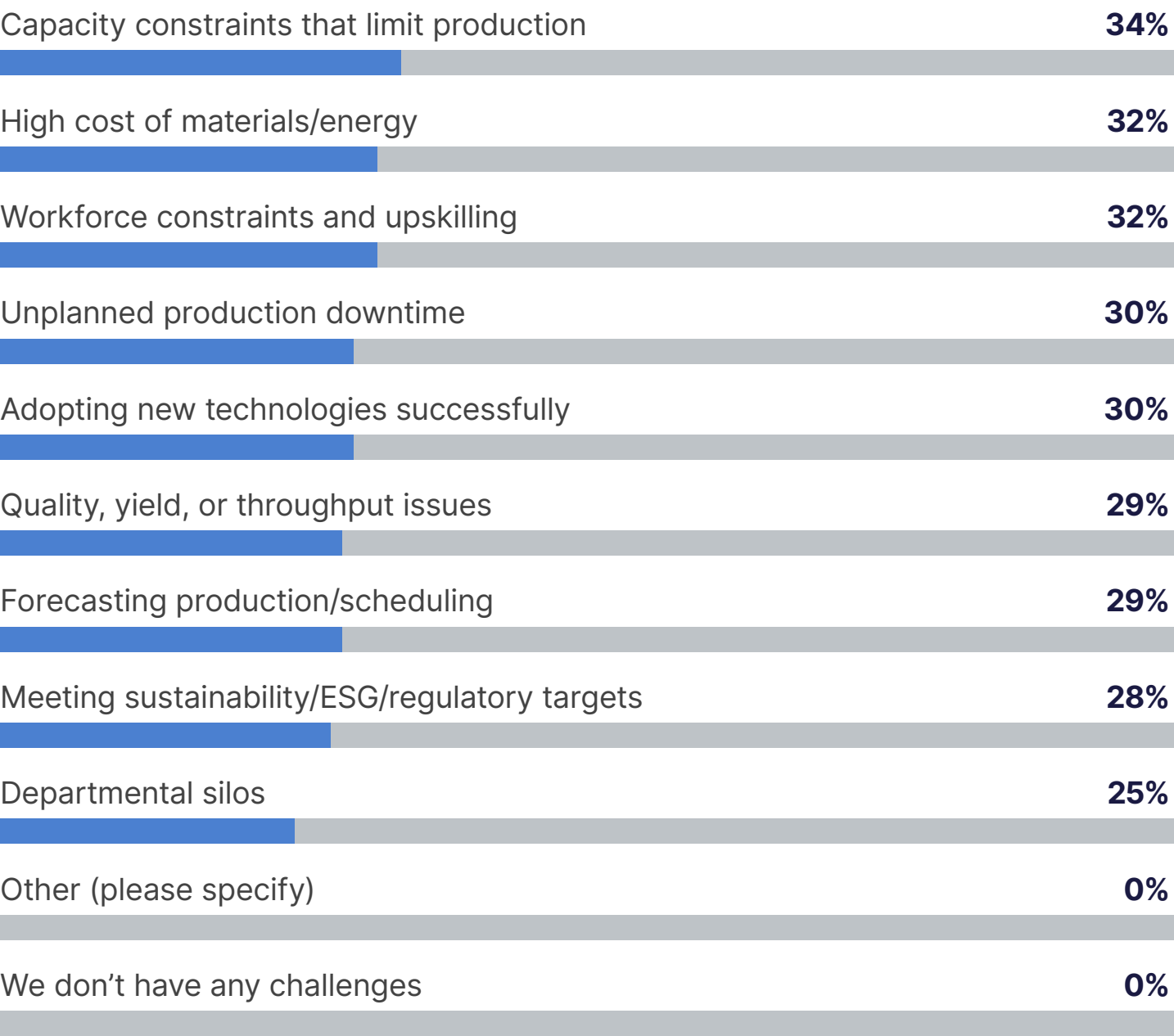
Manufacturing and Production Challenges

Industry Concerns Run the Gamut From Plant-Floor Stressors to Operational Fitness

Capacity constraints that limit production was the top challenge faced by respondents—up from the third ranking in 2024. The high cost of materials/energy and workforce concerns round out the top three challenges, which together likely paint a picture of industry concern over a possible market downturn.



What are your organization’s biggest manufacturing challenges?



Base: All respondents (n=499). Average number of responses given = 2.7

When asked about the primary factor that could limit their ability to meet production goals over the next 18 months, digital change management (added for 2025) overtakes supply chain as the top concern. Vendors unable to connect to existing ecosystems, also added for 2025, debuted at the number two slot.

The two are related—change management is harder with disparate vendors as point-to-point integrations are expensive to maintain—and, together, they can halt transformation efforts before they can even get started.

Top concerns about obstacles around business goals and production targets differed by role, with change management ranking first for operations people, supply chain ranking first for supply chain roles, unplanned downtime listed first for manufacturing/operations, inability to connect assets ranking first for plant leadership, and disparate vendors/disconnected systems and digital change management challenges tying for first with procurement.



Base: All respondents (n=498).

Industry Expresses Tariff and Recession Fears, While AI Enthusiasm Dips Slightly

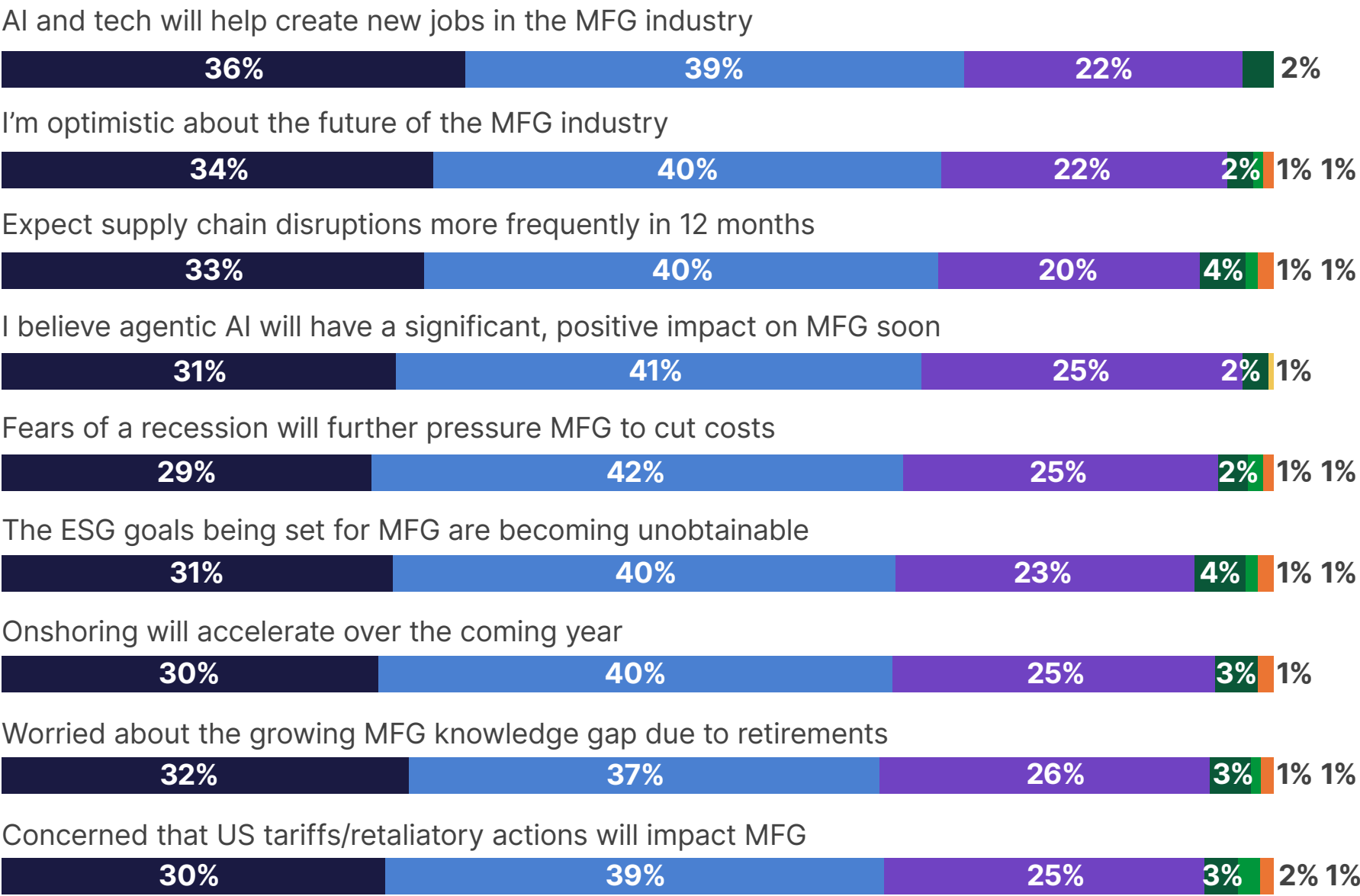
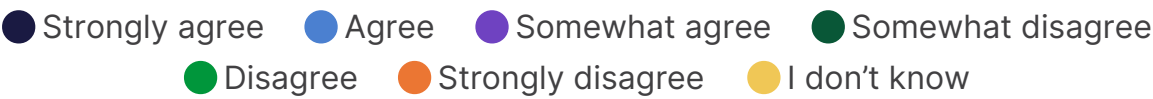
Manufacturing leaders’ expressed slightly less enthusiasm that AI will help create jobs in the industry, with 75% saying they strongly agree or agree this year, versus 81% who said the same last year. A strong majority, 72%, also believe agentic AI will have a positive impact. Supply chain professionals were most likely to foresee a positive impact from agentic AI, with 91% answering strongly agree or agree. They were also more enthusiastic about AI generally.

General industry optimism stayed fairly steady and positive when compared to 2024, though 73% expect supply chain disruptions to increase during the next 12 months and 71% expressed fears over a recession. Asked about tariff concerns, 69% answered strongly agree or agree, though the survey was fielded before tariffs were announced in April.

Looking deeper into the vertical data, paper and packaging (50%) and chemical manufacturing (36%) respondents were most concerned about cost cutting in their organizations and the negative impact of tariffs.

Geographically, U.S. respondents were slightly more concerned with cost cutting in their organizations than their European counterparts, but slightly less concerned about negative impact from tariffs.

To what extent do you agree or disagree with the following statements?



Base: All respondents (n=494-498).

PART TWO:

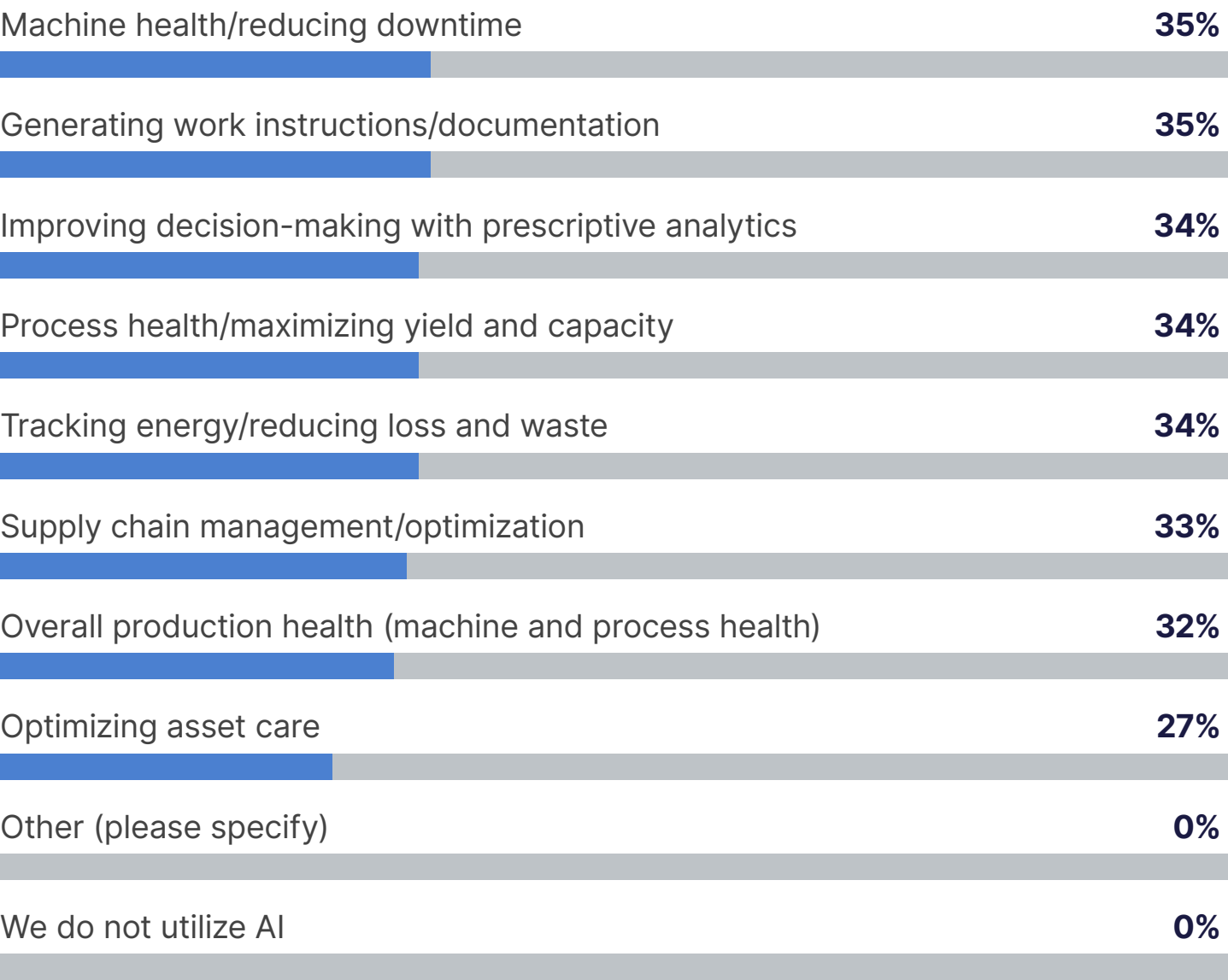
AI in Production

As AI Proliferates, Leaders Look for Results

This year, machine health/reducing downtime eclipsed 2024’s top choice of improving decision making with prescriptive analytics among top AI use cases. In a development that points to rapid progress along AI maturity curves, generating work instructions/documentation rose to the number two spot from seventh in 2024, reflecting a focus on interoperability and enterprise asset management (EAM) integration.



For which of the following areas does your company leverage AI?



Base: All respondents (n=499). Average number of responses given = 2.7

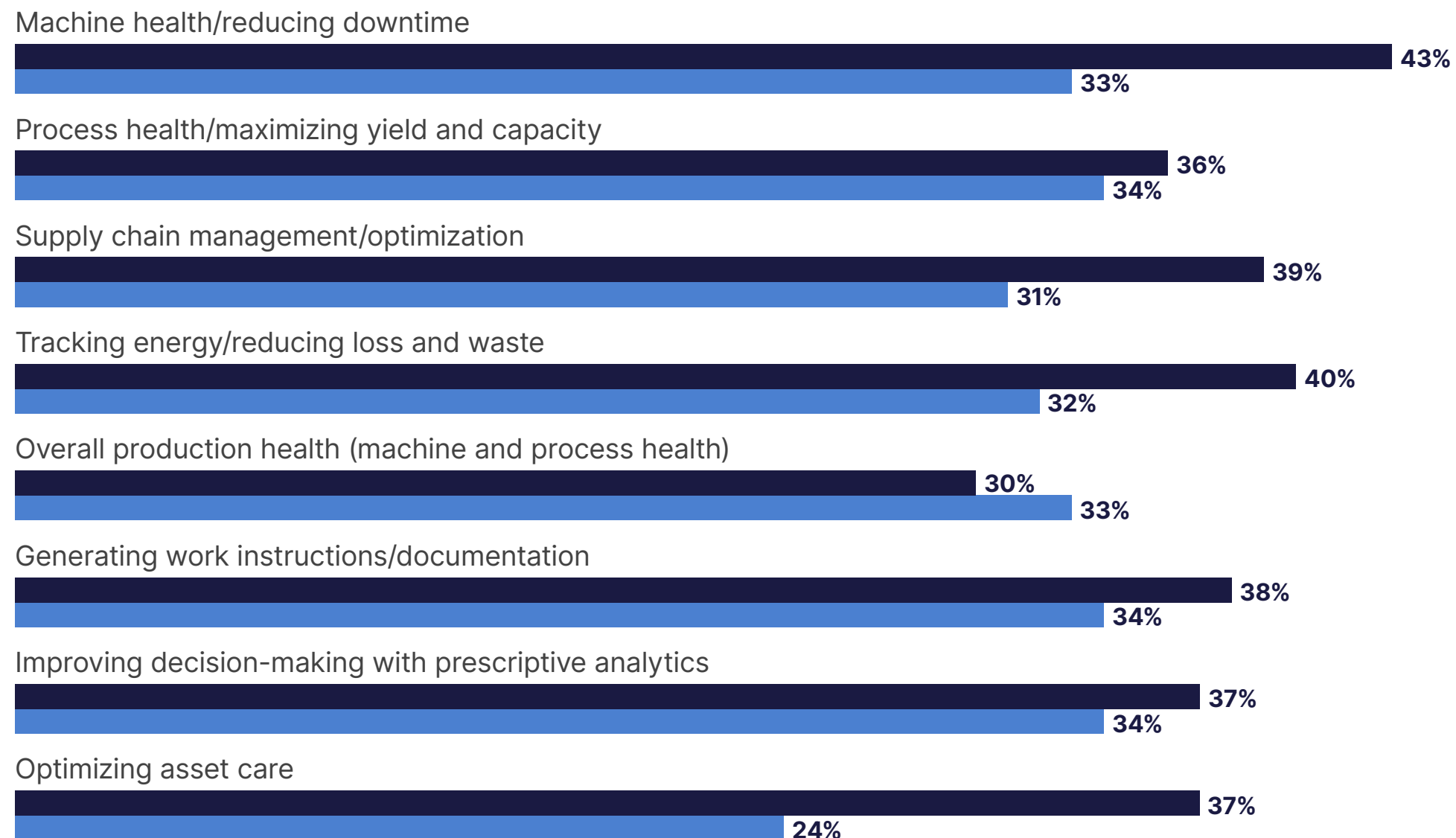


Europe Outpaces U.S. On AI

U.S. respondents exhibit a noteworthy lack of AI in maintenance and asset care relative to European respondents, along with other deficits. This may be due to a lower focus on ESG, which can drive manufacturers to consider the environmental impact of suboptimally-running equipment.

For which of the following areas does your company leverage AI?

● Europe ● United States



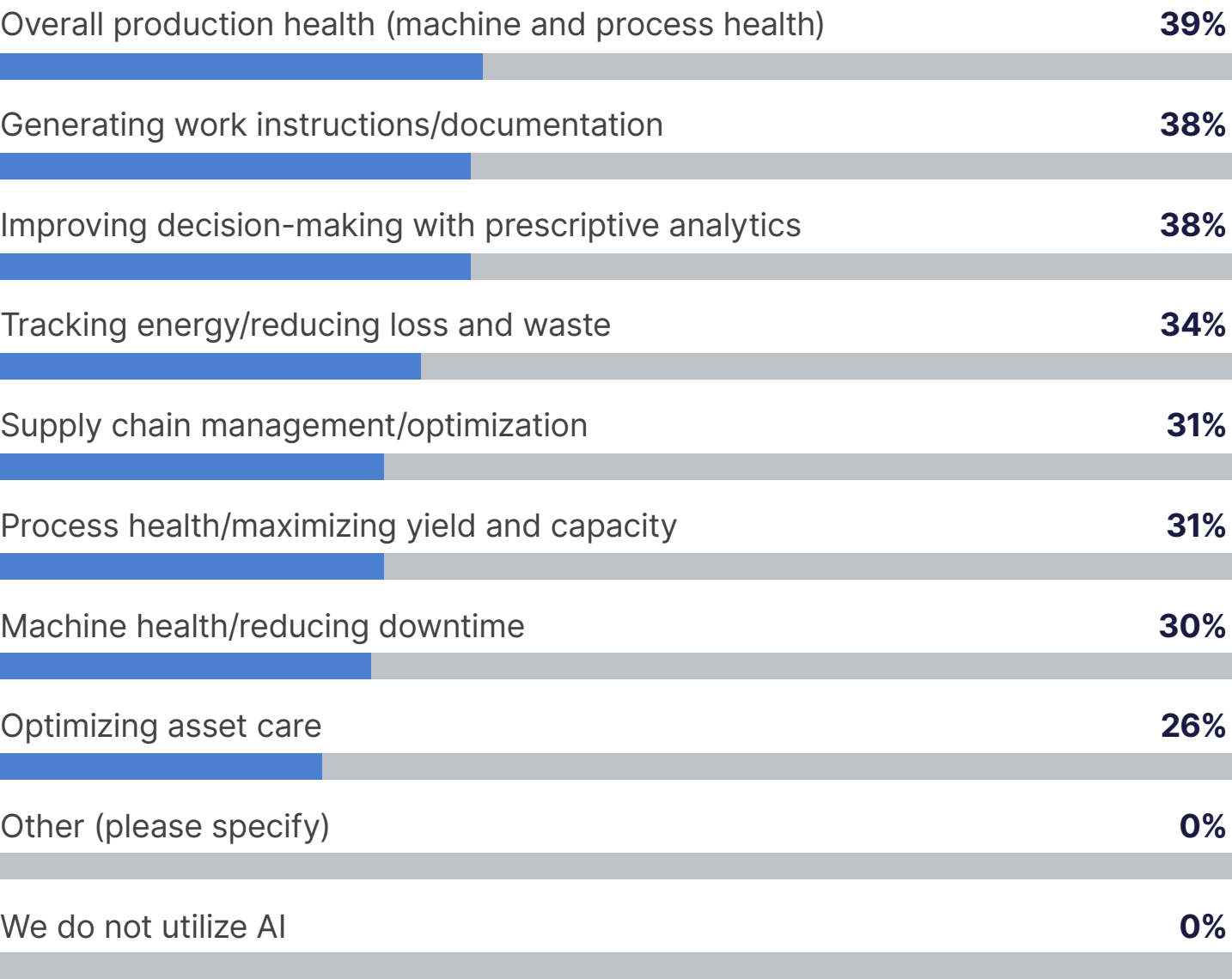


When it comes to quantifying AI impacts, supply chain management/ optimization fell by four ranking slots. In a time of trade policy volatility, respondents may address tariffs more with cost accounting and pricing rather than sourcing arrangements/suppliers, though they may need to work both fronts going forward.

That machine health finished first in AI usage but ranks seventh in quantifying its impact highlights a disconnect: manufacturers don’t need AI, they need trustworthy AI that meets their production needs.

The U.S. also trails Europe in areas of the business where they can quantify the impact of AI. Despite that, U.S. respondents still rated themselves more highly when it came to how advanced they were in adopting AI use cases to solve specific production problems.

For which of the following areas are you able to quantify the impact of AI in meeting business objectives?

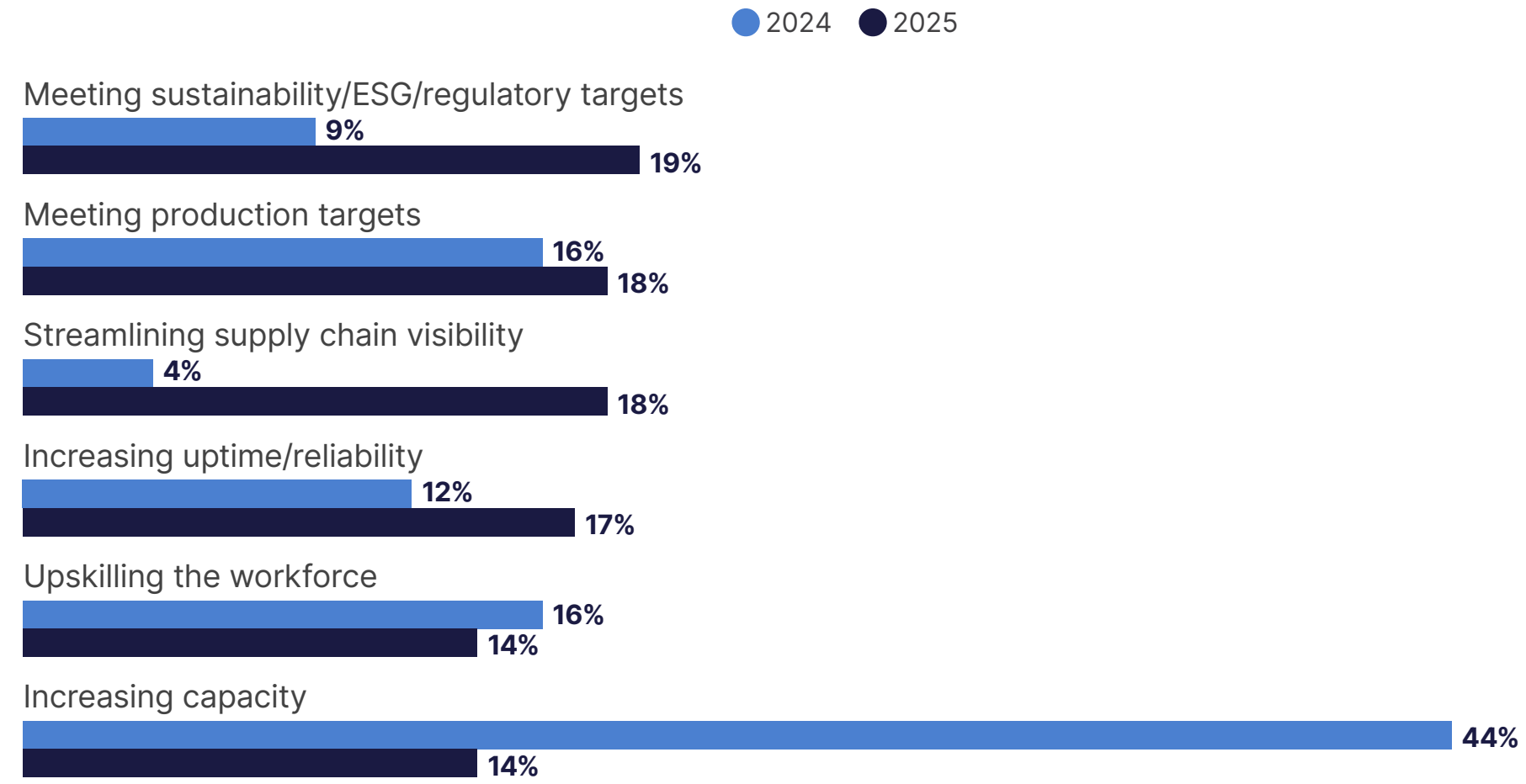


Base: All respondents (n=500). Average number of responses given = 2.7



Looking at top AI objectives, increasing capacity is way down from 2024's 44% to 14% in 2025, while sustainability rose to 19% and the top ranking this year, up from 9% in 2024. Streamlining supply chain visibility also rose substantially to third place and 18%, up from 4% last year. However, this year sees more even distribution of AI objectives across all answer options.

2024 vs 2025: Select your top objective for leveraging AI.



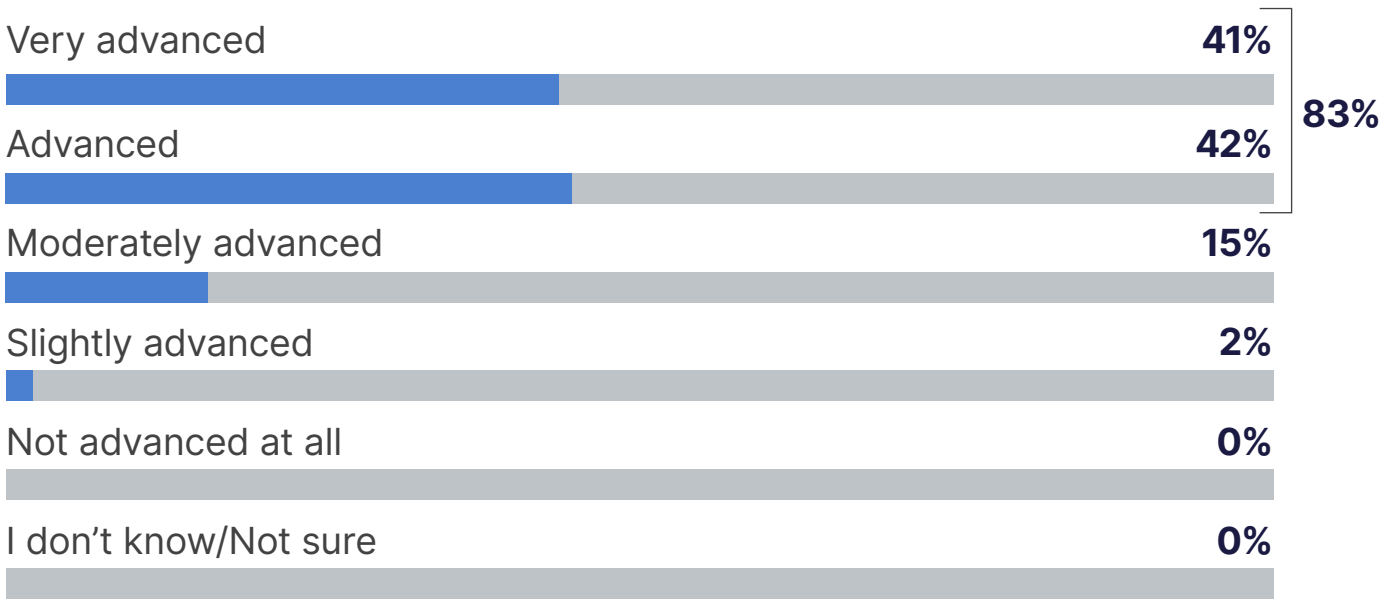
Base: 2024 respondents (n=705), 2025 respondents (n=500).

AI Confidence and Scaling Success Both See Growth

The percentage of respondents who said they were very advanced at adopting AI use cases for solving specific production problems jumped by 27% over 2024 numbers. Those saying they considered themselves either advanced or very advanced rose from 76% to 83% year over year—a number that looks like overconfidence when looked at in context with stated challenges around quantifying AI.

Operations respondents were most optimistic about how advanced they were at applying AI to production problems, with 96.4% saying they were very advanced or advanced.

How advanced is your business at adopting AI use cases for solving specific production problems?



Base: All respondents (n=500).

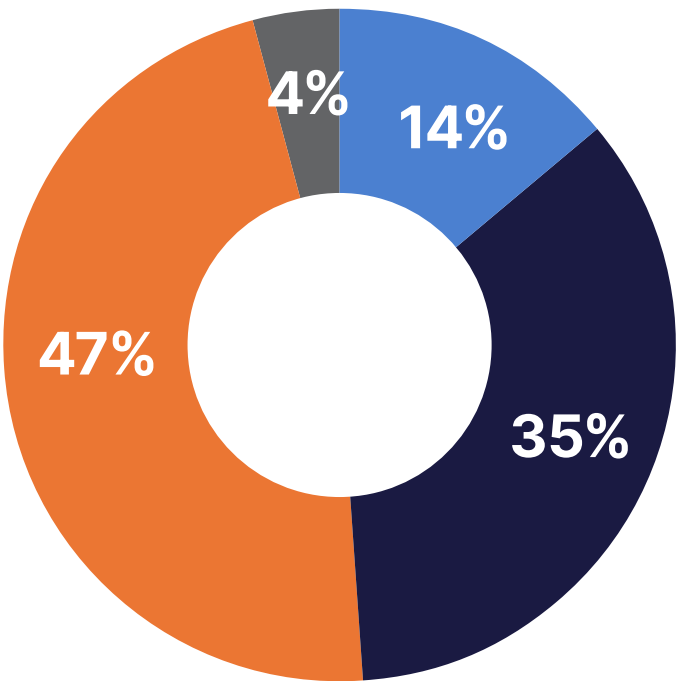
The percentage of respondents reporting that half or more of their AI projects had been rolled out across all their sites more than tripled between 2024 and 2025 from 4% to 14%—very good news for an industry that has long suffered from “pilot purgatory.” Progress is likely being driven by improvements in technology as well as manufacturers becoming savvier at evaluating and adopting AI tech.

Respondents with the smallest number of sites reported the least success extending AI pilot projects across all their sites, while those with between 51 and 100 sites reported the most success. Interestingly, companies with more than 100 sites fared poorly, suggesting the sheer number of sites may be a problem.

What percentage of AI pilot projects have reached scale across all your sites?

- Over 50%
- 26% to 50%
- 11% to 25%
- 0% to 10%
- I don't know/Not sure

Base: All respondents (n=499).





Focus On Quality, Yield, and Throughput Continues in 2025

Asked which production goals they want AI's help to achieve, respondents again ranked improving yield, quality, and throughput as the top choice. Breaking down department silos moved up eight slots to become the number two goal.

In both 2024 and 2025, upskilling the workforce ranked last. But, given the ongoing and well-documented issues with upskilling, this is a hidden opportunity for manufacturers to equip workers with the intelligence to function on a more tactical level.

Which production goals would you most want AI to help achieve?

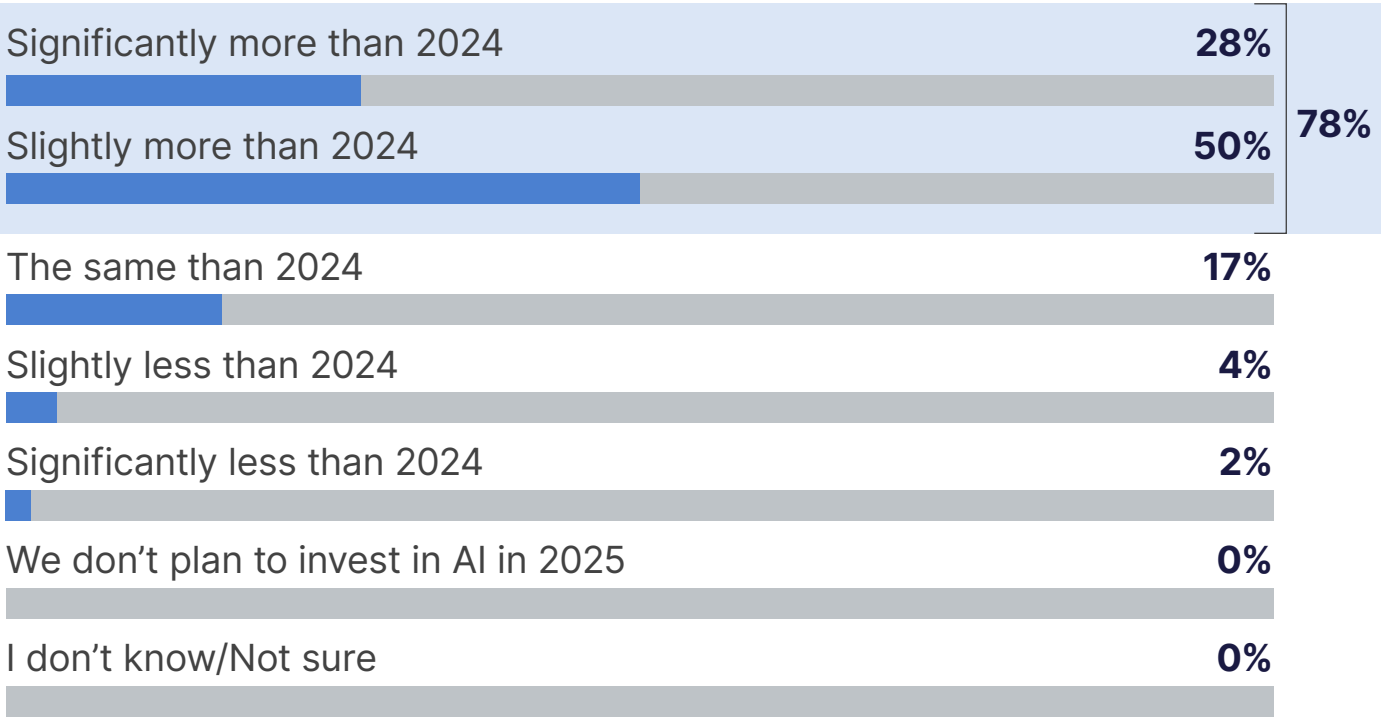


Base: All respondents (n=500). Average number of responses given = 2.7

AI Spend Stays Strong

The percentage of respondents who plan to spend more on AI than the previous year declined slightly, while the percentage planning to spend about the same amount increased. As AI becomes more mature as a budget-line item, orgs are advancing from the expensive implementation phase and toward the less costly acceleration phase.

For 2025, which of the following best describes your company’s plans for investing in AI?

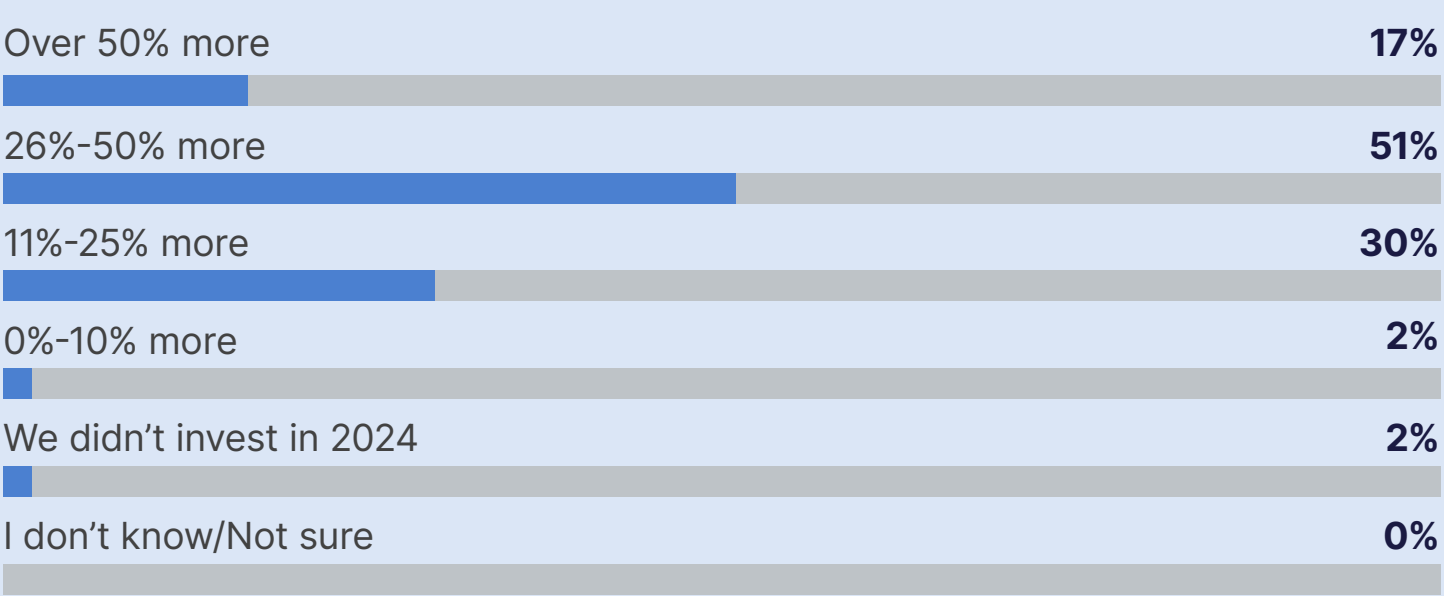


Base: All respondents (n=499).

Increased year-over-year spending may also be driving rollouts to additional sites. Among the 78% of respondents who said they would increase their AI investments significantly or slightly over 2024, just over half foresee increases of 26% to 50%.

Vertical industries most likely to report either significantly more or slightly more spending include cement (93%), food and beverage (92%), and paper and packaging (100%). Pharmaceutical manufacturers distinguished themselves as being most likely to plan to increase spending by 50% or more.

How much more do you plan on investing in AI in 2025 compared to 2024?



Base: Respondents investing more in 2025 (n=387).

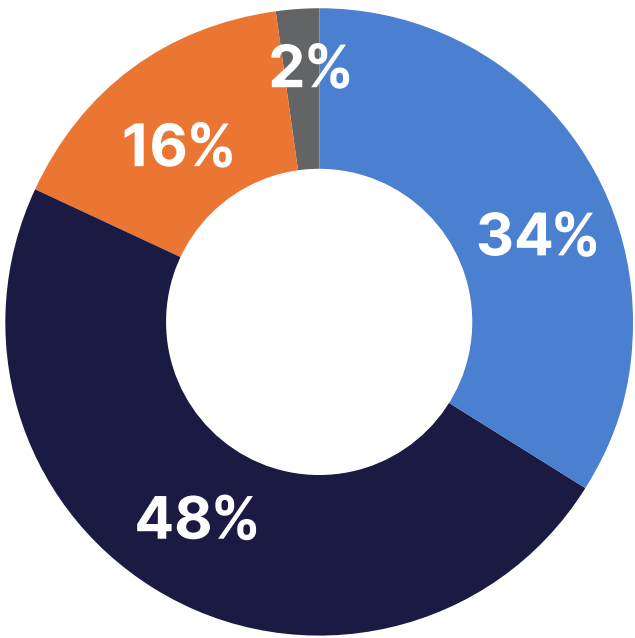
Big Majority Use Gen AI, But Gaps Remain

A new question about generative AI use was added to the study for 2025. The 82% of respondents who report their business using generative AI put this sample in the same ballpark as a recent [study from McKinksey](#), which in July of 2024 reported generative AI use at 71%.

While supply chain/inventory management and predictive maintenance were the most frequent use cases for generative AI, process optimization coming in last reveals an opportunity to improve process health while reducing waste and emissions. This has a direct effect on ESG and sustainability targets, which respondents identified as their top priority for leveraging AI.

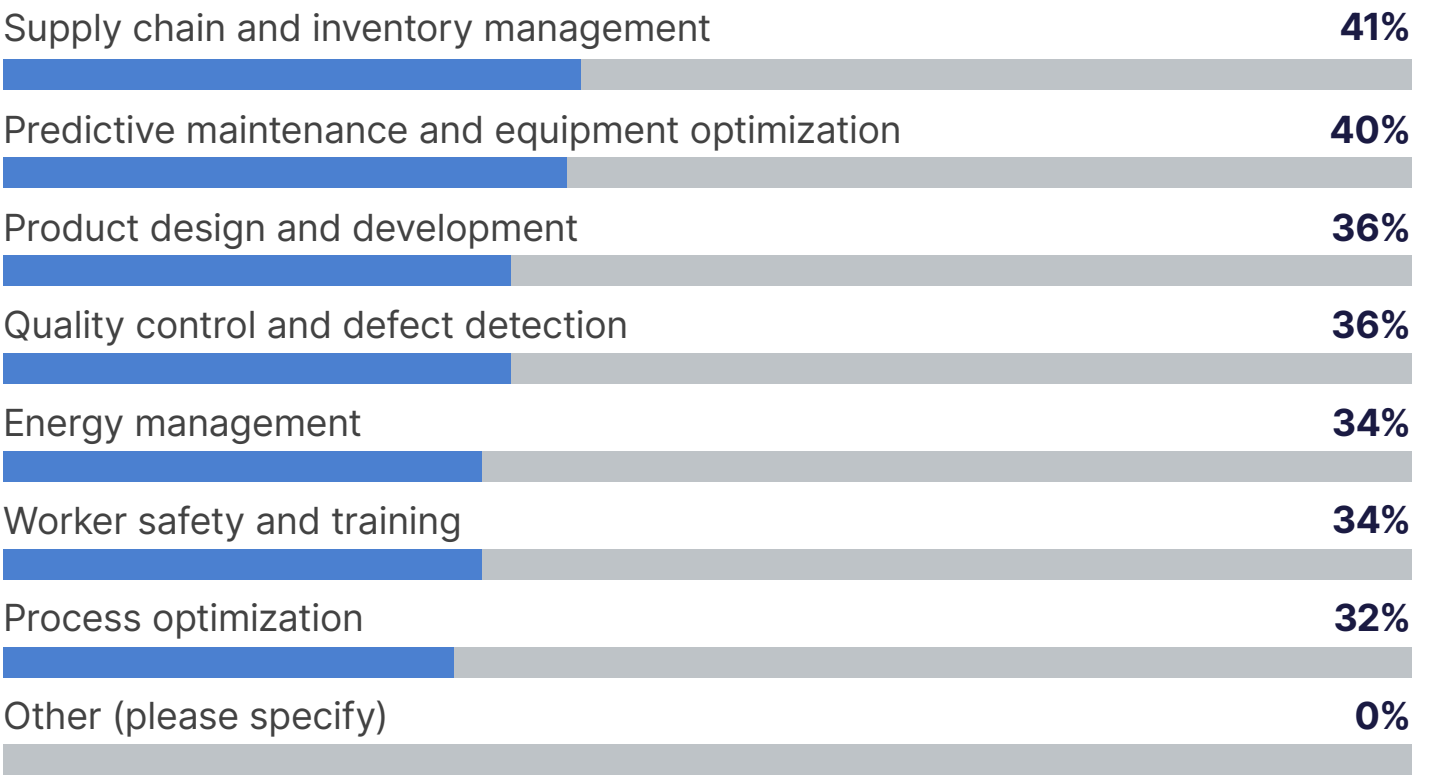
To what degree, if any, is your manufacturing business implementing generative AI tools?

- We are using generative AI tools widely across the business.
- We have begun limited use of generative AI tools.
- We have not yet implemented generative AI tools but plan to in 2025.
- We have not implemented generative AI tools but are exploring the possibility.
- We have not implemented generative AI tools and have no plans to do so.



Base: All respondents (n=500).

If you have implemented, or are planning to implement generative AI tools, what problems are you trying to solve with them?



Base: All respondents (n=490). Average number of responses given = 2.5

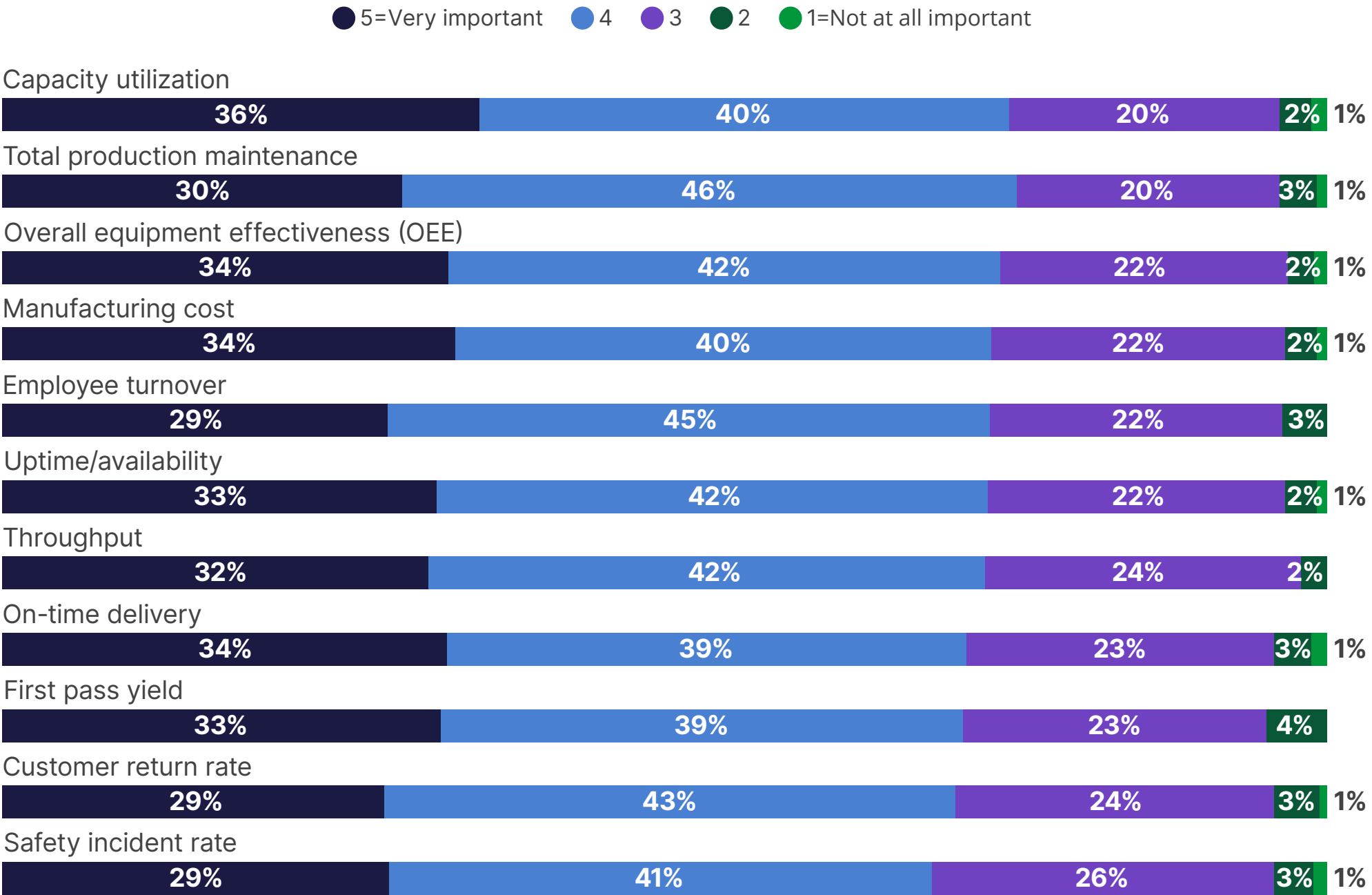
PART THREE:

Overcoming Roadblocks and Meeting Goals

Production Goals Drive Capacity, TPM, and OEE as Top KPIs

Key performance indicators (KPIs) most likely to rate as very important or important were the related metrics of capacity utilization and total production maintenance (TPM), a new option added to the study in 2025. A TPM program aims to increase the percentage of the time production equipment is available, leading to higher capacity utilization. A related metric that balances reliability with throughput, overall equipment effectiveness (OEE), also rose in the rankings from eighth to third.

How important are the following KPIs when it comes to measuring your organization’s success?



Base: All respondents (n=500).

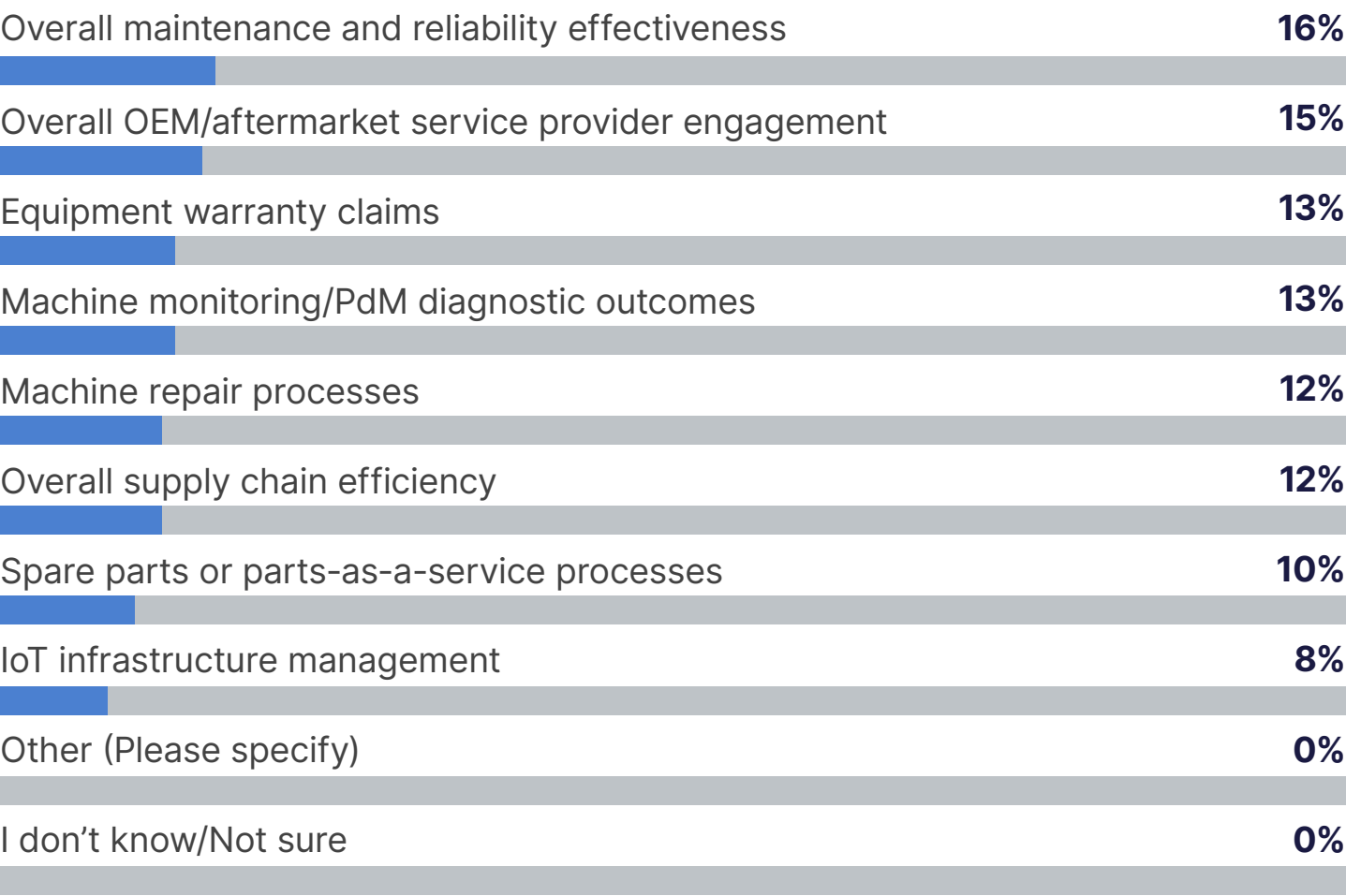


More PdM-OEM Partnerships Could Yield Widespread Benefits

Interaction between machinery original equipment manufacturers (OEMs) and predictive maintenance (PdM) software vendors plays a role in production health and AI success. Just under a third said their PdM vendor and OEMs had a “strong strategic alliance and collaborate closely with OEMs and aftermarket service providers,” revealing significant room for improvement.

Close ties between vendors and partners improves everything from maintenance outcomes to supply chain efficiency, as evidenced by the evenly distributed outcomes respondents identified as possible benefits.

What area of your business would benefit from a close partnership between your machine health/PdM vendor and OEMs/aftermarket service providers?



All respondents (n=500).

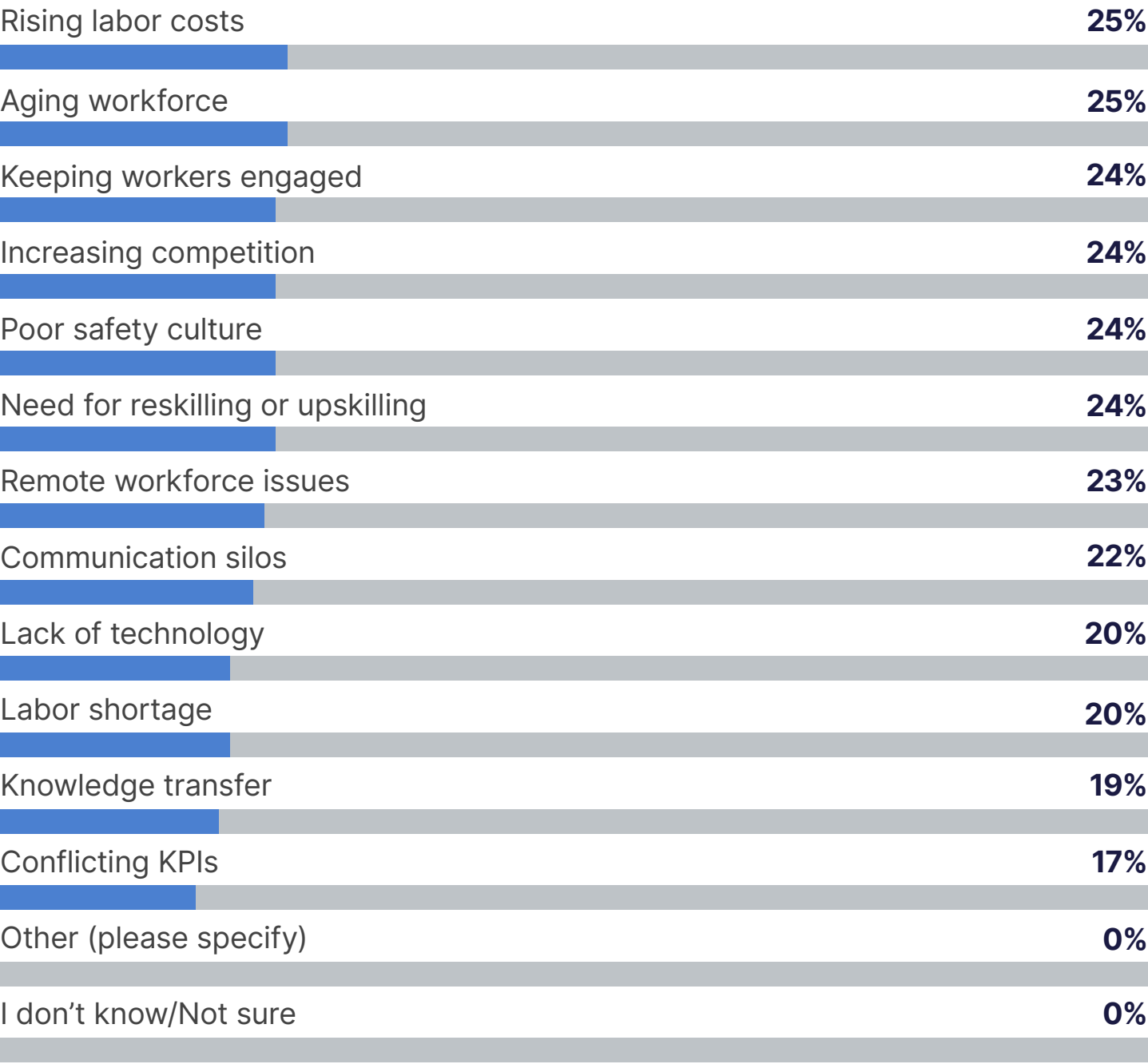


Workforce Challenges Remain, But So Does Faith in Technology

Rising labor costs, also number one in 2024, tied with an aging workforce among reported workforce barriers. But responses are pretty evenly distributed across all listed barriers, signaling that most workforce challenges are serious and ongoing concerns. As some manufacturers attempt to onshore production, those challenges will likely grow more concerning.

On a positive note, almost 90% strongly agree or agree that adopting advanced technology would positively impact their workforce, with strongly agree edging up 3% over 2024.

What are the largest obstacles facing your company’s workforce?



Base: All respondents (n=499). Average number of responses given = 2.7

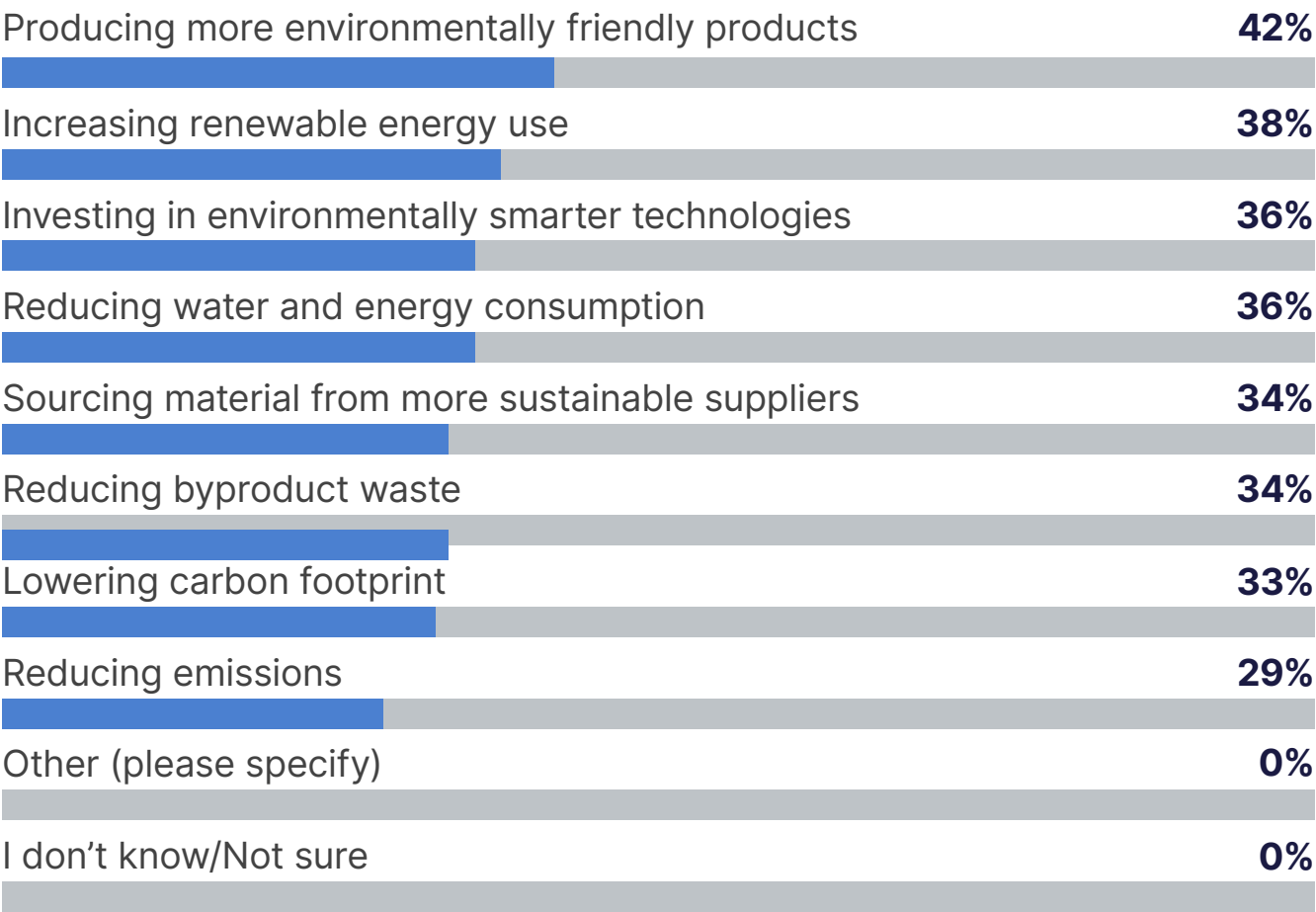
PART FOUR:

Sustainability in Manufacturing

A Plurality Says Sustainability Efforts Improve Production KPIs

Producing more environmentally friendly products (42%) and increasing renewable energy use (38%) are the top sustainability priorities among

What sustainability or ESG efforts are you undertaking?

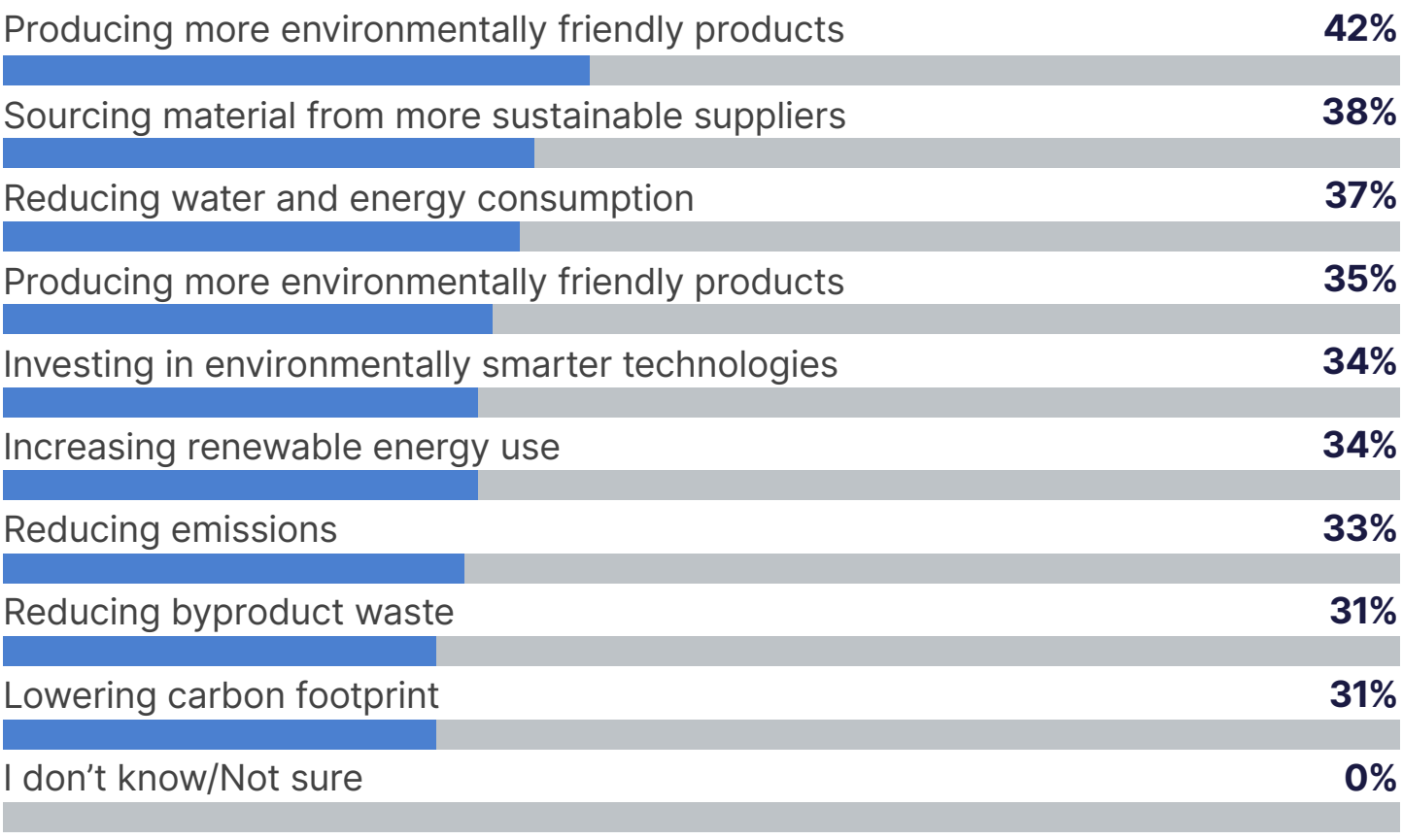


Base: All respondents (n=500). Average number of responses given = 2.8

respondents. In 2024, producing more environmentally friendly products ranked fifth among sustainability efforts, a significant shift.

Two in five say they can quantify AI's impact on their efforts to produce greener products. Meanwhile, reducing emissions and byproduct waste ranked lower, signaling potential for easy gains through process optimization. European respondents, shaped by stricter regulations and a stronger sustainability culture, feel more prepared for ESG changes and are more optimistic about their broader business impact.

For which sustainability/ESG efforts are you able to quantify the impact of AI in meeting business objectives?



Base: All respondents (n=499). Average number of responses given = 2.7

CONCLUSION

The industrial world is full of uncertainty and contradictions: AI holds great promise to deliver value and solve problems for manufacturers, but many of its best use cases remain unclear; tariffs, trade wars, and geopolitics threaten economic growth even as the underlying optimism in the resilience of manufacturing remains strong.

It's no surprise that our latest survey reflects those same dynamics. Adoption of AI continues to accelerate and mature, even as companies apply it broadly, still searching for the most effective use cases and ROI. It's increasingly apparent that manufacturers should check their overconfidence and take an honest look at where production is coming up short:

- Close gaps in connectivity, change management, and supply chains to fully leverage data-driven solutions such as AI
- Retool how their operations work with AI, data, and insights in order to overcome capacity concerns, workforce shortages, and increasingly costly materials
- Move smartly, not quickly, while embracing new industry solutions such as process optimization

Doing so will help them meet the needs of the moment, and the longer-term needs of their organizations.



ABOUT AUGURY

A leader in Machine Health and Process Health solutions, Augury helps manufacturing and industrial companies eliminate production downtime, improve process efficiency, maximize yield, and reduce waste and emissions. Powered by purpose-built AI technology, trained by industry experts and the world's largest data library, our global customers achieve 5-20x ROI. Together with our customers, we are pioneering Production Health to transform how people and machines work together to push the boundaries of human productivity.

ABOUT THE SURVEY

In March of 2025, Augury's research partner, Endeavor Business Intelligence, used a research panel approach to survey 500 manufacturing professionals in the United States, Germany, France, and the United Kingdom. The respondents were screened to include full-time employees with Director, VP/Head, or C-suite seniority working in industries including food and beverage, chemicals, consumer packaged goods, building materials, pharmaceuticals, oil and gas, and cement.

All the companies have an annual revenue of \$100M+, including 40% with revenues above \$500M. All the respondents report that their company has at least five manufacturing sites.