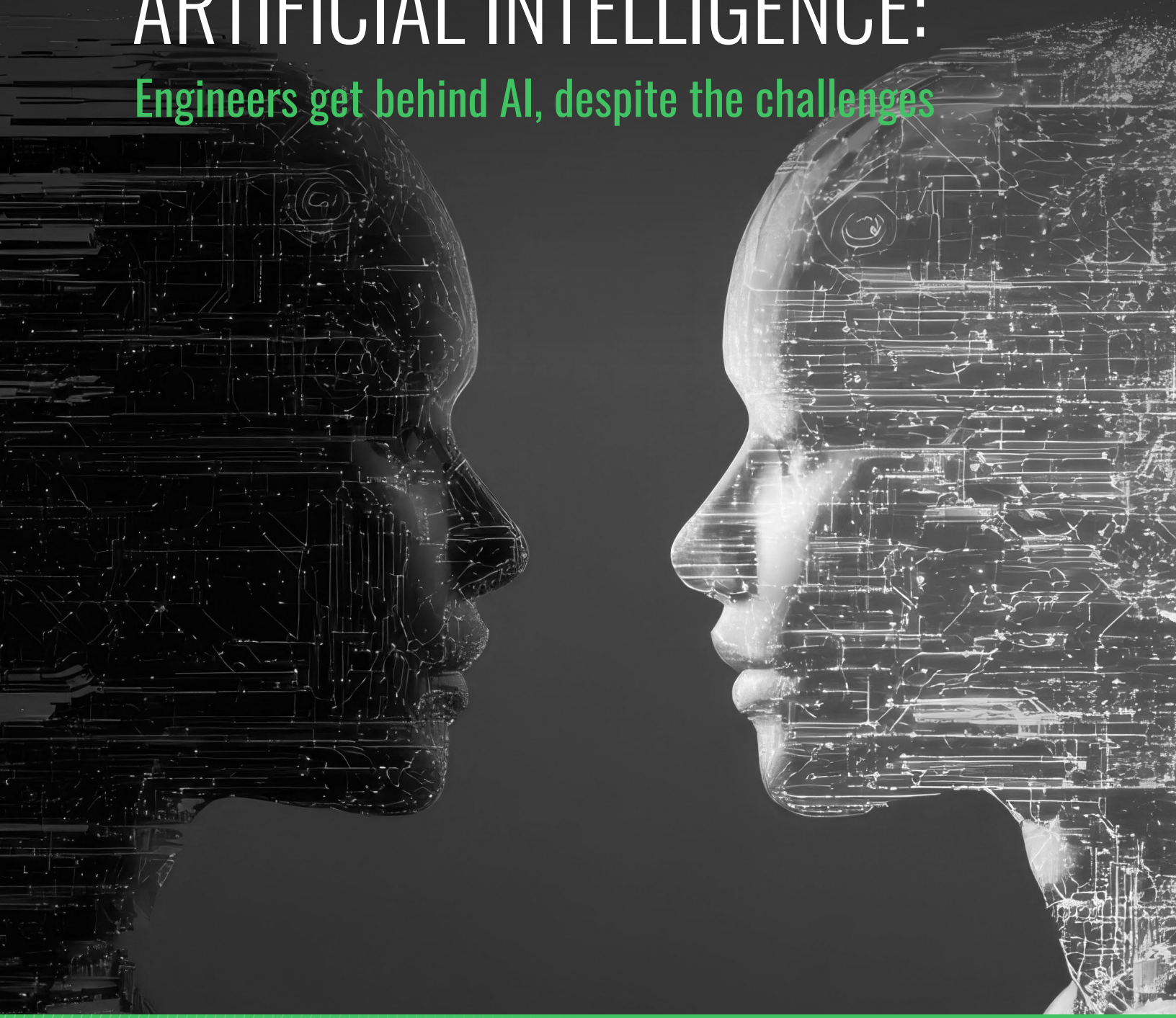
AVNET®

THE REALITY OF ARTIFICIAL INTELLIGENCE:

Engineers get behind AI, despite the challenges



JANUARY 2026

AVNET INSIGHTS

THE REALITY OF ARTIFICIAL INTELLIGENCE:

Survey shows engineers are optimistic on AI, but see obstacles ahead

EXECUTIVE SUMMARY

The 2026 Avnet Insights survey reveals a technology sector marked by cautious optimism and rapid innovation. Most manufacturers expect market conditions to improve, with customer demand and faster production schedules driving growth. Artificial Intelligence (AI) adoption is now mainstream, with nearly all respondents either shipping or preparing to ship products that incorporate AI.

Despite this progress, significant challenges remain. Data quality, power requirements and operational concerns such as sustainability and continuous learning are the top challenges cited by survey respondents. Regional differences highlight varying approaches to AI integration and market confidence, reflecting broader cultural and economic factors.

In summary, the industry is moving decisively toward AI-enabled product development, balancing optimism with a clear-eyed view of the challenges ahead. The findings underscore the need for ongoing investment in data quality, ethical AI practices and sustainable operations to ensure continued success in an evolving global landscape.

SURVEY METHODOLOGY

Avnet Insights is an annual survey of engineers. The 2026 survey was conducted online and fielded to 1,200 global respondents from October 21 through November 5, 2025. Regionally, respondents were based in the Americas, EMEA, Asia and Japan.

This is the second year of the AI-focused survey, providing a comparison between 2025 and 2026. The focus remains on two key aspects affecting technology companies today: the socio-economic environment and the continued adoption of artificial intelligence.

The primary industries represented are in the combined category of Software, Technology, Computer Equipment and Telecommunications (58%). Revenues from represented companies are fairly evenly distributed from below $10 million (11%) to over $10 billion (8%), with the largest (18%) having revenues between $101 - $500 million. On average, 38% of respondents hold the role of Software Engineer, with the next largest group (28%) holding Engineering Management positions.

Almost all respondents (95%) indicated they have primary (72%) or shared (23%) responsibility for setting the company's strategic direction for product design and engineering practices. The predominant (27%) tenure was between 8 – 10 years.

In conclusion, the profile of the typical respondent is an experienced software engineer working for a multi-million-dollar company operating in a high-tech industry, with decision-making authority regarding the company's strategy with respect to the use of AI.

KEY FINDINGS

Main takeaways regarding socio-economic environment:

- Most (77%) feel market conditions are improving, with respondents in the United States showing the strongest levels of optimism (83%). Very few (11%) felt conditions are worsening.
- Of those with a positive outlook, only 7% on average feel lower prices are a significant contribution to the uptick. Respondents feel faster production schedules are the main driver (42%) of their optimism.
- Despite the prevailing optimism, respondents were almost evenly split over whether the next 12 months would be more difficult or easier (30% to 33% respectively).

Main takeaways regarding engineering practices and AI:

- More products are shipping with AI incorporated into their design. Globally, over half of engineers (56%) said that they have incorporated AI into designed products and solutions they are shipping to customers. This is a 33% increase from last year, when only 42% said they were shipping products with AI incorporated into designs. Products that incorporate both artificial intelligence and machine learning demonstrate the strongest adoption across all regions.
- Almost all (96%) of respondents accept that AI-powered tools will influence the way they develop new products within the next 3 – 5 years.
- Data quality is the biggest challenge for product developers integrating AI.

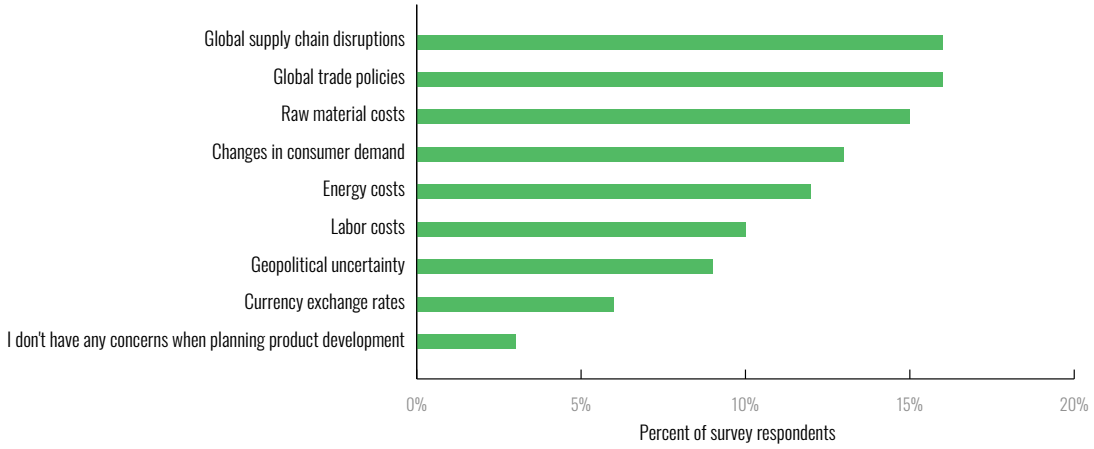
CONCERNS ARE GLOBAL: CAUTIOUS OPTIMISM FUELED BY FASTER PRODUCTION SCHEDULES

While those surveyed feel that market conditions are getting much better (34%) or somewhat better (43%), and just 11% feel they are worse, it appears there is considerable optimism among engineers. However, outside factors directly affecting the industry continue to cause disruption.

High among these were disruptions to global supply chains (16%) and global trade policies (16%). There are some regional variations, but concerns over currency exchange rates were universally low, suggesting the companies our respondents work for have a high degree of confidence that fluctuations will be small and not disrupt their own trade balance.

EXTERNAL FACTORS HITTING PRODUCT DEVELOPMENT

Which one of the following external factors is your biggest concern when planning product development?





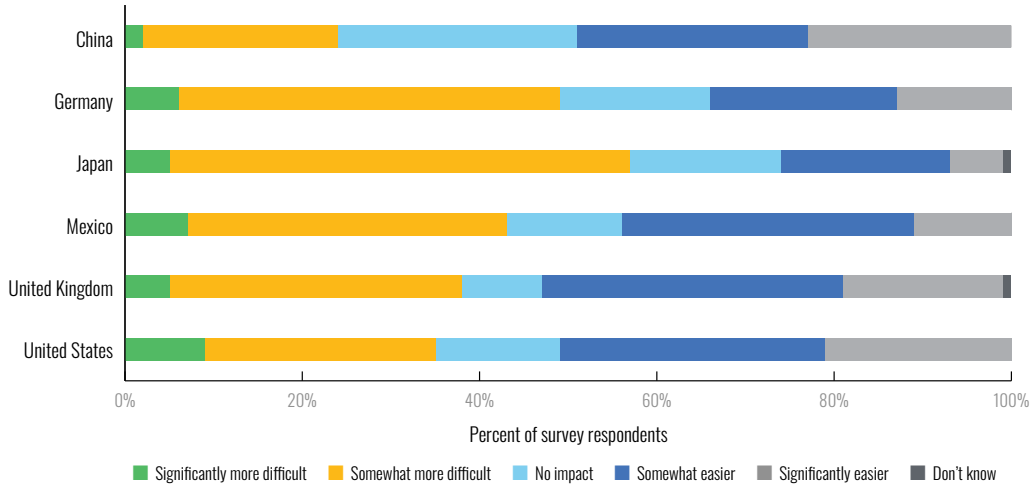


Year on year, our survey showed the general feeling is that conditions will make product development more difficult over the next 12 months.

Respondents are slightly less concerned about higher prices (61% in 2024 vs 55% in 2025) but more concerned about lead time (8% vs 18%). However, design cycle times are less concerning (10% vs 7%). This supports the findings this year that global conditions are supporting faster production schedules (42%), which translates to faster time to profit.

YEAR-ON-YEAR OUTLOOK

Looking back over the past 12 months, have economic and market conditions made your product design and development work easier or more difficult?

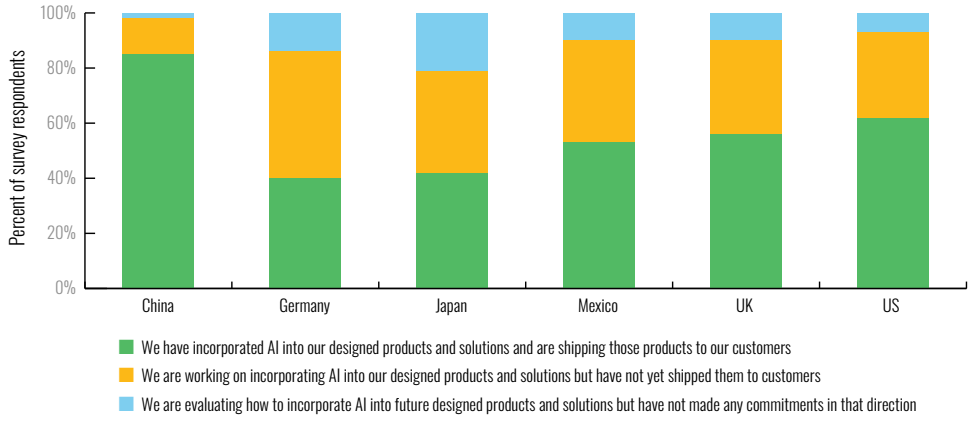


MULTI-MODAL DRIVING AI ADOPTION IN SHIPPED PRODUCTS

AI has passed the proof-of-concept stage, with 89% of respondents confirming they either are shipping (56%) or are about to start shipping (33%) products that incorporate some kind of artificial intelligence. A further 10% said they are evaluating the use of AI.

GLOBAL INTEGRATION OF AI

Which of the following best describes how your company is incorporating AI into the products you are designing today?



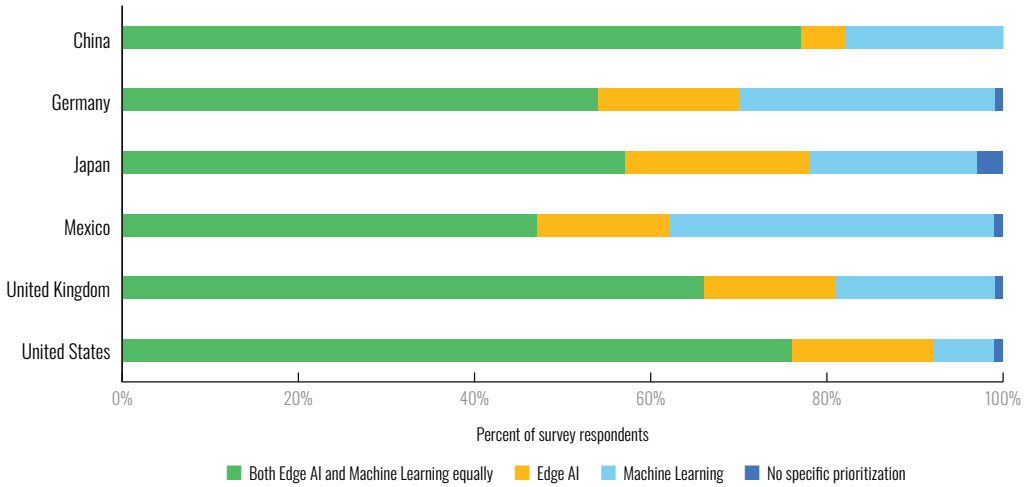
Multi-modal describes using more than one type of artificial intelligence in a product or using a type of AI that can perform more than one type of inference. Examples include a large language model that can process text and image data.

More relevant to this survey, multi-modal combines AI and machine learning (ML) models in the same application, working in concert on multiple types of data to deliver greater functionality and value.

The equal use of edge AI and ML dominated the responses in our survey, with 64% of respondents (average across all regions) shipping products that incorporate both AI and ML. Those respondents evaluating the technology also favor multi-modal, with 55% of manufacturers citing the use of AI and ML equally in their products.

MULTI-MODAL DOMINATES PRODUCT DEVELOPMENT

Which of the following are you prioritizing to incorporate into your designs?

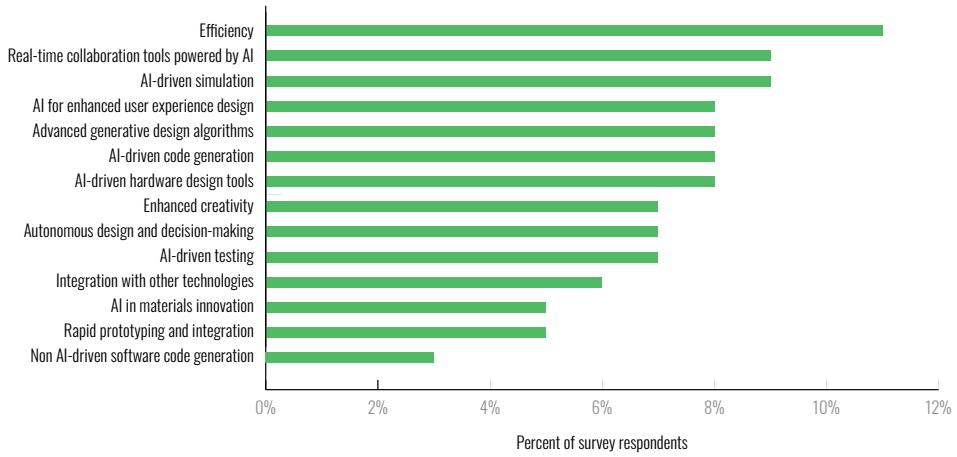


There is high (96%) expectation that automation enabled by AI will influence product design and development processes in the next 3 to 5 years. A similar number (94%) of respondents expect AI-based processes to enable more personalization and customization of products.

But respondents were split on the specific processes that will be most changed by AI, indicating that the use of AI will permeate every area of manufacturing, almost uniformly.

AI IN ALL ASPECTS OF MANUFACTURING

Which one of the following emerging AI trends do you believe will have the BIGGEST impact on the design of products within the next five years?



USING AI IN PRODUCTION COMES WITH CHALLENGES

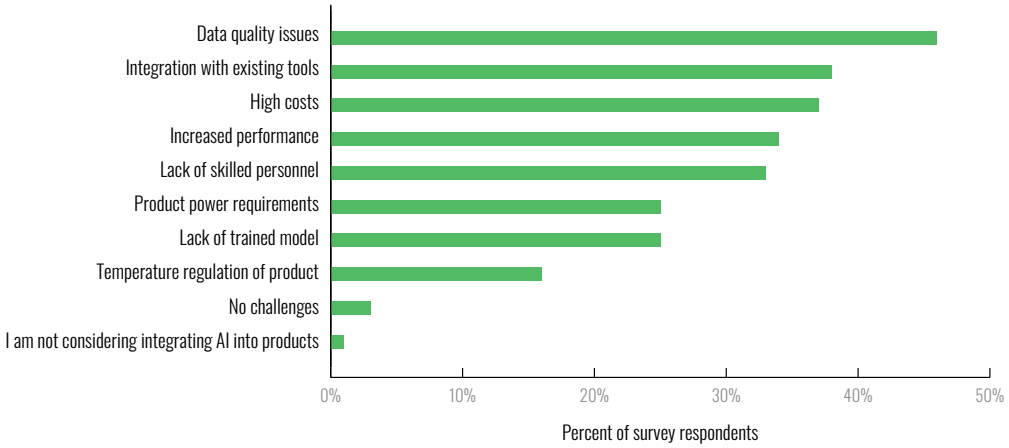
The most cited function for AI in production in 2026 was, once again, Process Automation (42%), with Object Detection and Sensor Fusion both at 16%. Year-on-year, the figures haven't changed significantly, indicating the industry is still focused on the same functions.

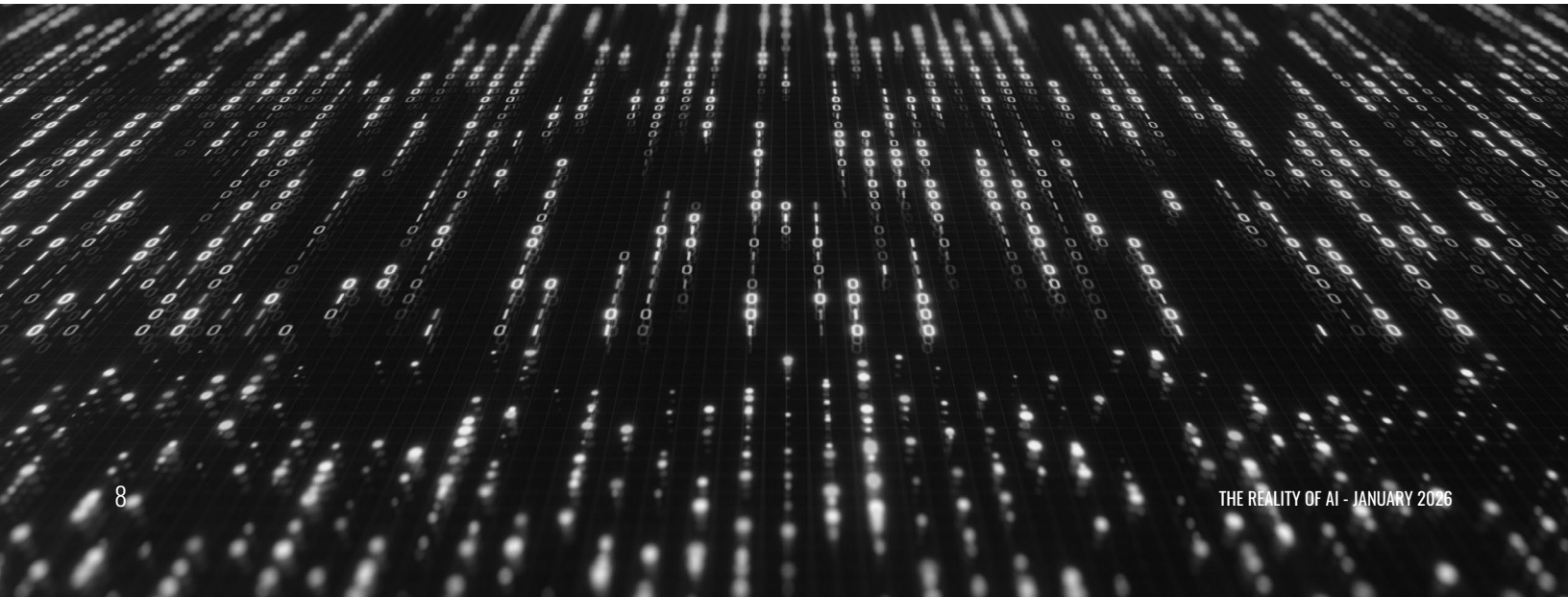
Engineers using large language models (LLMs) to answer technical questions (98% of respondents) favor commercial offerings (81%) over in-house trained LLMs (17%). However, 37% said they would prefer to use an in-house LLM, suggesting a lack of resources (time, money, expertise) to build, train and maintain a proprietary solution.

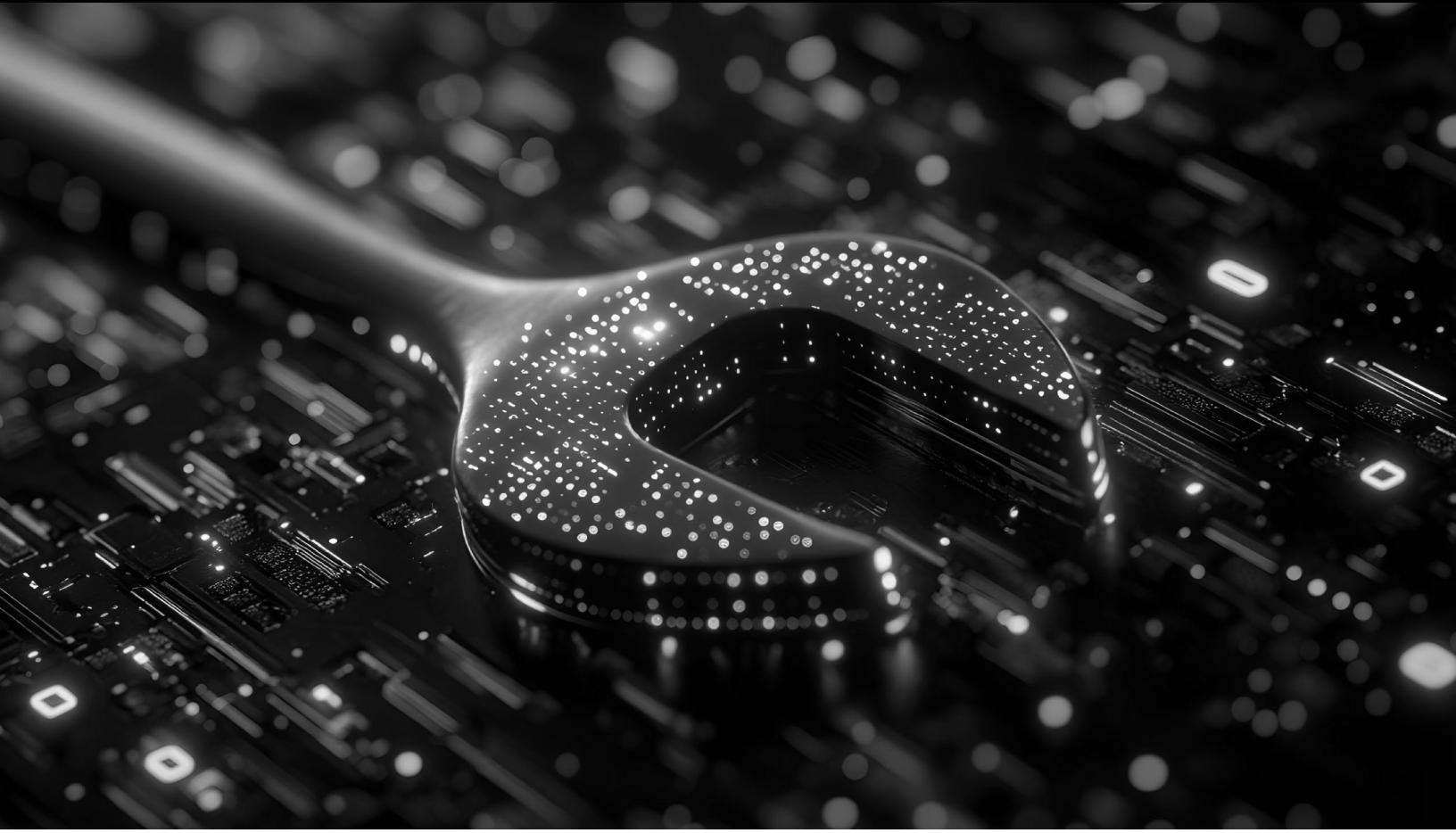
These challenges transfer to the use of AI in products, with data quality, cost and tool integration scoring highest. While a lack of trained models is also a concern, power requirements were also a factor.

INDUSTRY IS AWARE OF DESIGN CHALLENGES AHEAD

What are the biggest design challenges when considering integrating AI into your products? (select up to 3)





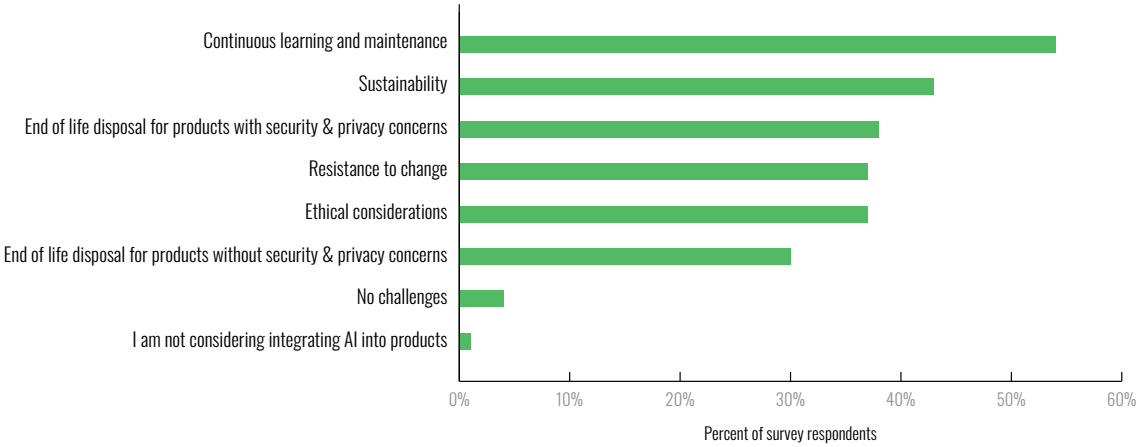


The operational challenges manufacturers expect to encounter include security and any potential data privacy breach associated with disposing of products at the end of their life. The ethical use of AI during the product lifecycle is also a concern.

But the primary concern (54%) is the need for continuous learning and maintenance when deploying AI, followed closely (43%) by managing sustainability. This last point relates closely to the power requirements – typically higher when using AI – of end products, and the need for increased cooling.

SUSTAINABILITY AND CONTINUOUS LEARNING

What are the biggest operational challenges when considering integrating AI into your products? (select up to 3)



REGIONAL VARIATIONS: OBSERVATIONS

All regions reported confidence in market conditions, with an average aggregate score covering **Much Better** and **Somewhat Better** reaching 77%. However, Japan stands out as being most cautious, with the majority (56%) only feeling **Somewhat Better** about market conditions and scoring highest (19%) for **Somewhat Worse**.

Perhaps not surprisingly, China and the United States are most concerned about global supply chain disruptions (24% and 23% respectively), while Germany and Mexico are relatively relaxed about supply chains (both 9%).

China is also the standout region for incorporating AI into products, with a score of 85% versus an average of 56%. Germany is the laggard in this respect, with a score of 41%. Virtually nobody, across all regions, believes AI will not be a significant factor in the future, but the survey shows Japan has the highest percent of respondents (22%) who although are evaluating AI for future products have not made any commitments, compared to an average of 10% for all regions.

In terms of the type of AI being incorporated into products, Machine Learning scores 21% globally but 37% in Mexico, with Germany also scoring higher than average at 29%. This may reflect a focus on using AI in industrialization within those nations.

Cultural differences and global trade policies may be responsible for the variations in how AI will be used to enable customization and personalization of products in the future. The United States and Mexico lead here, with **Extremely likely** scores above the average of 36% (43% for US, 45% for Mexico). Japan trails, with 22%.



China Leads the World in Incorporating AI into Products

Avnet's 2026 Insight Survey, looking at AI adoption across the world, highlighted a significant regional difference. When asked, "How is your company incorporating AI into product design?" 85% of respondents in China indicated they are shipping products with AI today. That's compared to an average of 50% for all other respondents across Germany, Japan, Mexico, the UK and the US.

Which of the following best describes how your company is incorporating AI into the products you are designing today?



Why the Gap?

There is good reason to suggest why this regional difference exists, namely that China's AI ecosystem is accelerating at scale:

- **Industry footprint:** Over 5,000 AI companies (up from 1,400 five years ago).
- **Model leadership:** More than 1,500 AI models released—over 40% of global output—and 190 generative AI models registered for public use.
- **Compute power:** 780+ PFlows of intelligent compute across eight hubs and 25 nodes, supported by a 400Gbit/s optical network and MaaS platforms that streamline PoC-to-product.

Market & Policy Drivers

- The automotive market is exerting significant pull for AI features. The larger Chinese automotive giants embed AI into functions such as domain controllers, radar, and driver monitoring—shortening time-to-market.
- Over 240 AI standards and $125B in national AI funds have fueled 47 unicorns.
- Semiconductor sovereignty efforts include China's Big Fund III's $47.5B investment in photolithography and EDA tools.

China's dominance in AI adoption reflects a powerful combination of infrastructure, policy and market velocity. For global players, this underscores the urgency to scale AI initiatives—not just in R&D, but also in commercialization—if they want to remain competitive in high-growth sectors.

/ CONCLUSION

Manufacturing economies are decisively moving toward AI-enabled product development, balancing optimism with a realistic view of the challenges ahead. Success in this evolving landscape will depend on sustained investment in data quality, ethical AI practices, and sustainable operations.

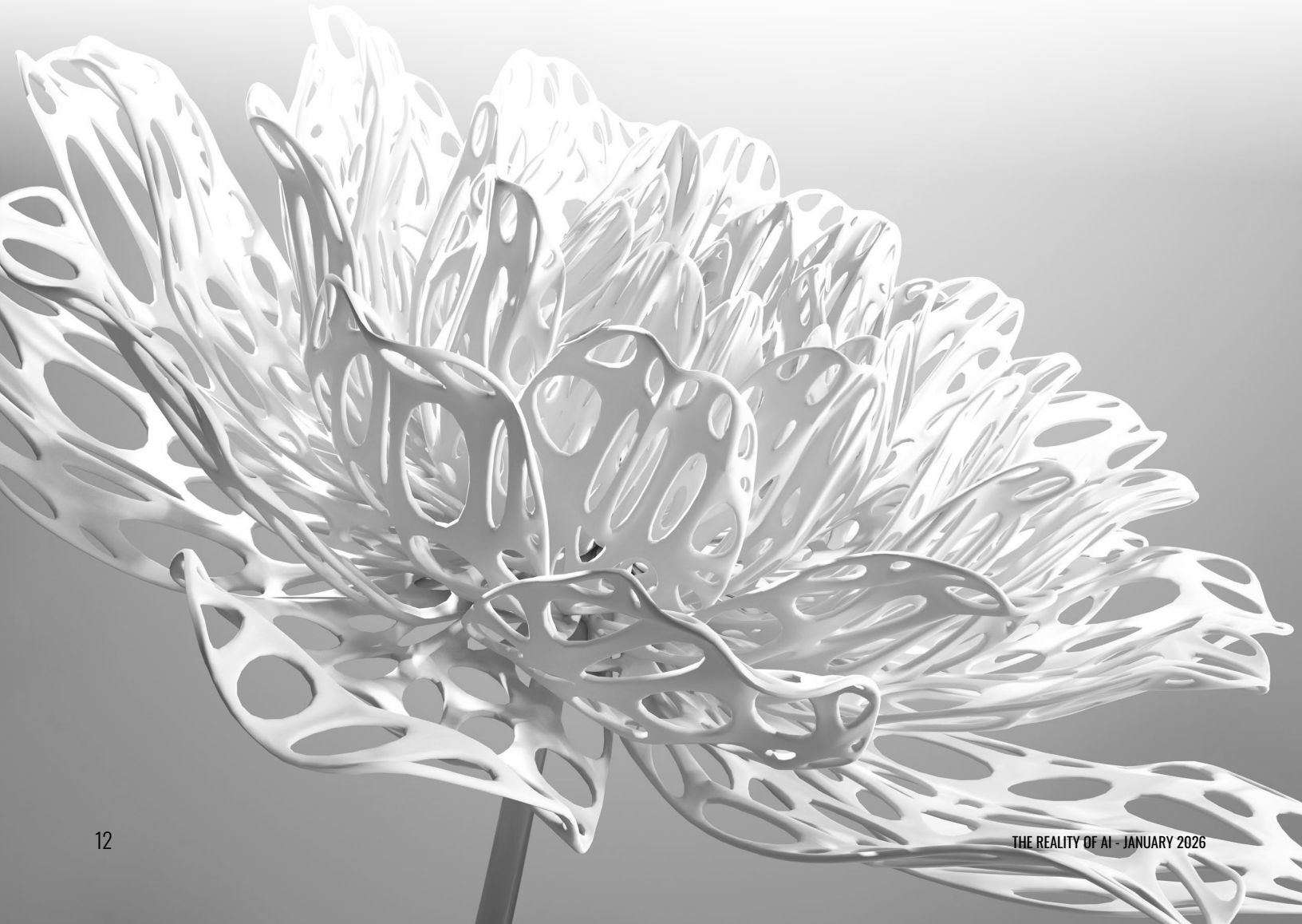
This Avnet Insight survey highlights several notable trends:

- Multi-modal AI adoption is accelerating, with manufacturers increasingly combining AI and ML models to deliver greater functionality and value in their products.
- Automation through AI is a dominant focus, especially in process automation, fault detection and predictive maintenance.
- Personalization and customization enabled by AI are expected to become more prevalent, particularly in the United States and Mexico.
- Operational and ethical challenges including sustainability, security, and continuous learning are increasingly recognized as critical areas for ongoing investment.

These results underscore the importance of adaptability and innovation as manufacturers navigate the opportunities and complexities of AI integration.

ADDITIONAL RESOURCES

AVNET 2025 SURVEY: EMBRACING ARTIFICIAL INTELLIGENCE





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As a leading global technology distributor and solutions provider, Avnet has served customers' evolving needs for more than a century. Through regional and specialized businesses around the world, we support customers and suppliers at every stage of the product lifecycle. We help companies adapt to change and accelerate the design and supply stages of product development. With a unique viewpoint from the center of the technology value chain, Avnet is a trusted partner that solves complex design and supply chain issues so customers can realize revenue faster.

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