DE247 Digital Engineering

RESEARCH BRIEF

The Future of Simulation-Driven Product Development

New survey shows how companies are aligning AI, data, and people to accelerate innovation and modernize digital engineering operations.

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INTRODUCTION

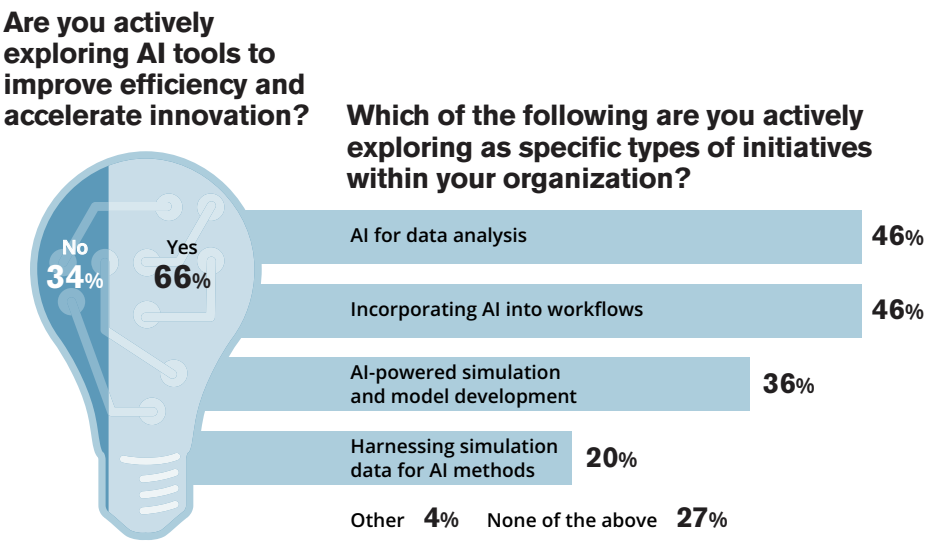
Pressure is building inside R&D teams, where engineers and product designers are being asked to innovate faster, cut costs, and use emerging tools like artificial intelligence (AI). To better understand how R&D organizations are adapting, Rescale partnered with Peerless Research Group and surveyed more than 165 engineering and technology leaders. The goal? Understand how companies are using digital tools, cloud platforms, and AI to drive the next era of product innovation.

The survey found that AI and cloud computing are driving progress, even as many organizations continue learning how to connect these technologies with existing simulation and engineering systems. Leaders are focused on accelerating time to market, improving collaboration between IT and engineering, and turning complex data into usable insight. Together, these priorities are shaping a more connected, efficient, and resilient R&D ecosystem.

FASTER TIMELINES, HIGHER EXPECTATIONS

The rise of AI is changing how engineering teams approach design, testing and decision-making. Two thirds of survey respondents (66%) say their organizations are already exploring or using AI to improve efficiency and speed up product development. From that group, 46% are using AI for data analysis, a similar share is incorporating it into workflows and 36% are leveraging AI-powered simulation and model-based systems engineering.

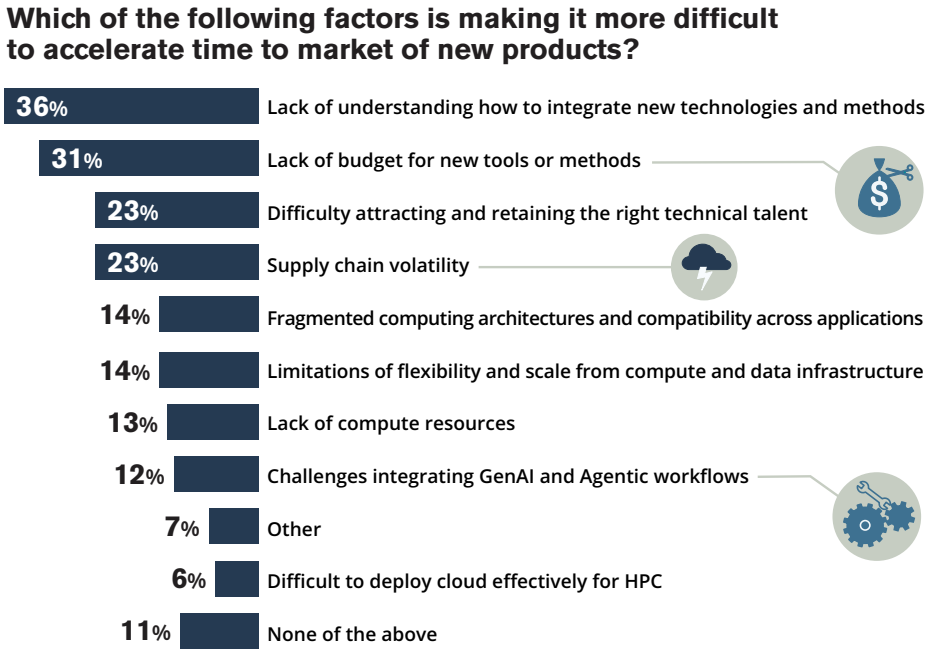
FIGURE 1



As marketplace competition increases and companies work to meet their customers' changing needs, the race to accelerate new product time-to-market is on in full force. More than half (60%) of companies report pressure to deliver results faster. That increased pressure is driving an even greater need for connected, scalable digital tools.

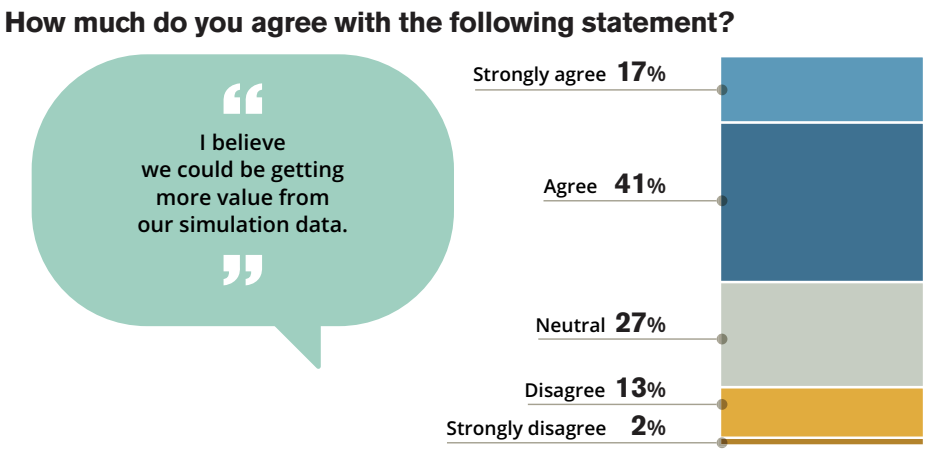
When asked about challenges that slow time-to-market, respondents pointed to a range of resource and infrastructure constraints. Some of the issues are poor understanding of how to integrate new technologies and methods (36%), lack of budget for new tools (31%), and difficulties attracting and retaining the right technical talent (23%).

FIGURE 2



Based on these results, it's clear that engineering teams are under mounting pressure to deliver products faster and that the push is driving widespread adoption of AI-powered tools. But AI alone can't deliver results without a strong foundation of accessible, connected data. The majority of survey respondents (58%) say they could extract more value from their current simulation data and use it to uncover missed insights, improve quality/completeness, and reduce duplication. This finding suggests that many organizations recognize the untapped potential of their existing simulation data and its potential as a stronger driver of innovation and performance.

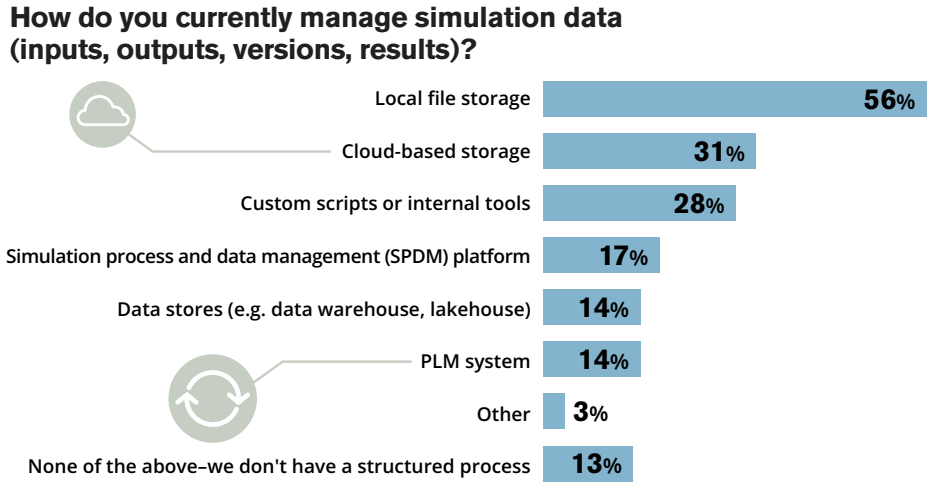
FIGURE 3



WORKFLOW FRICTION IMPEDES DESIGN

Most companies are still managing simulation data assets (e.g., inputs, outputs, versions and results) locally, with 56% storing simulation results on premises and only 31% using cloud-based platforms. These setups limit collaboration and slow the feedback loops that support smart R&D decision-making.

FIGURE 4



With engineering teams managing more simulation data than ever, exactly how that data is handled can directly impact both speed and quality. When asked about their biggest challenges in this area, 43% pointed to workflow inefficiencies, followed by data quality (36%) and data access (28%). Looking ahead, top organizational priorities include improving data quality and governance (45%), expanding AI and automation (38%), and boosting collaboration (35%).

FIGURE 5

Which of the following categories best describe your top challenges?

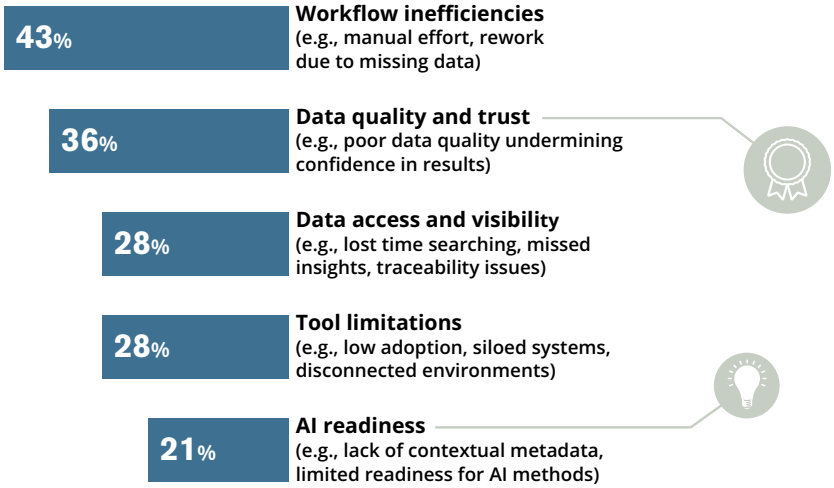
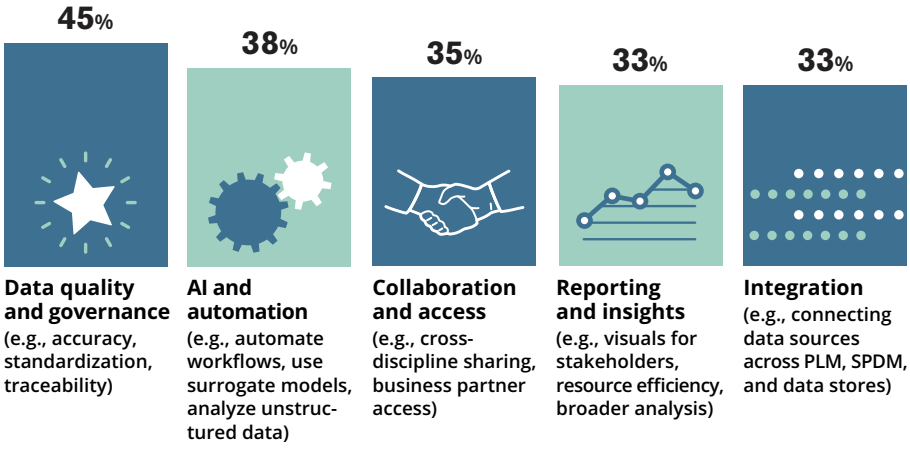


FIGURE 6

Thinking about the next 12 months, what are your highest-priority initiatives around simulation data?

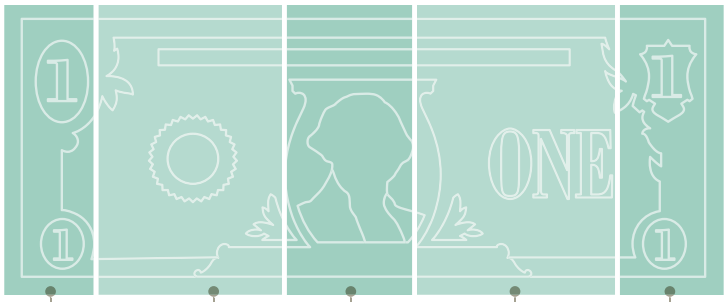


BETTER SUPPORT FOR SIMULATION DATA NEEDED

Over the next 12-18 months, 57% of survey respondents are at some point planning to invest in better simulation data infrastructure or integration tools. Asked what their top barriers are to adopting AI-based simulation, companies cite a lack of expertise (47%), the need for better trust and accuracy (41%), and lack of business alignment (32%) as the biggest challenges.

FIGURE 7

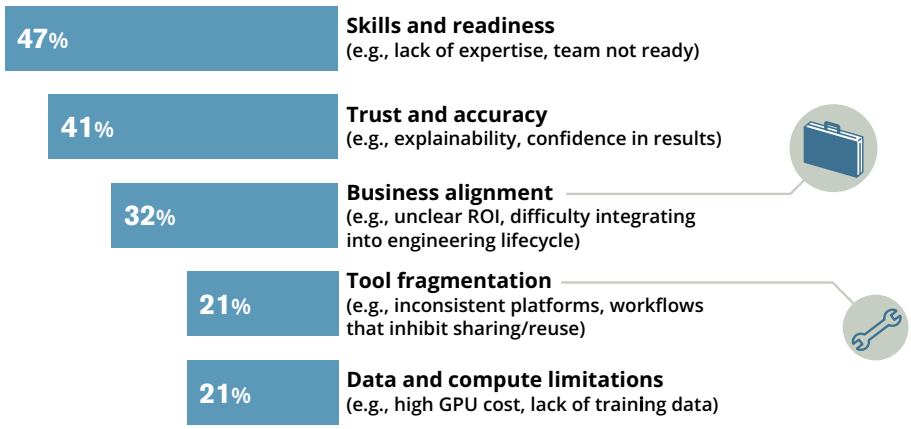
Are there plans to invest in better simulation data infrastructure or integration tools in the next 12–18 months?



Yes, we have approved plans	In exploration/ evaluation phase	Not yet, but likely	No current plans	Unsure/ Don't know
13%	26%	18%	28%	15%

FIGURE 8

Which areas present the biggest barriers your team faces with adopting AI methods for simulation today



Looking out 12 months, companies' top AI priorities for simulation include standardization and adoption (40%), workflow integration (36%), and the acceleration of product development (34%). The key drivers behind these initiatives include improved team productivity, cost reductions, and faster product development. Companies also want to improve simulation accuracy, gain competitive advantage, and enhance operational decision-making.

FIGURE 9

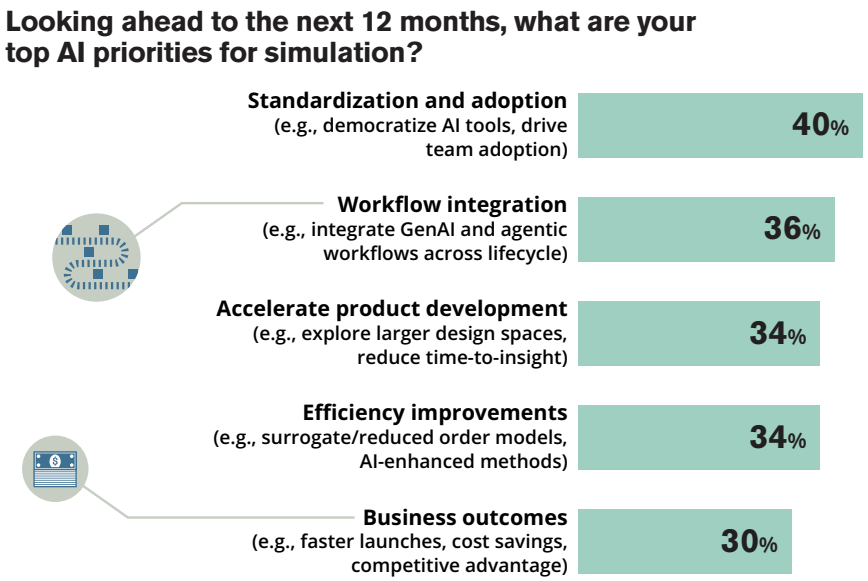
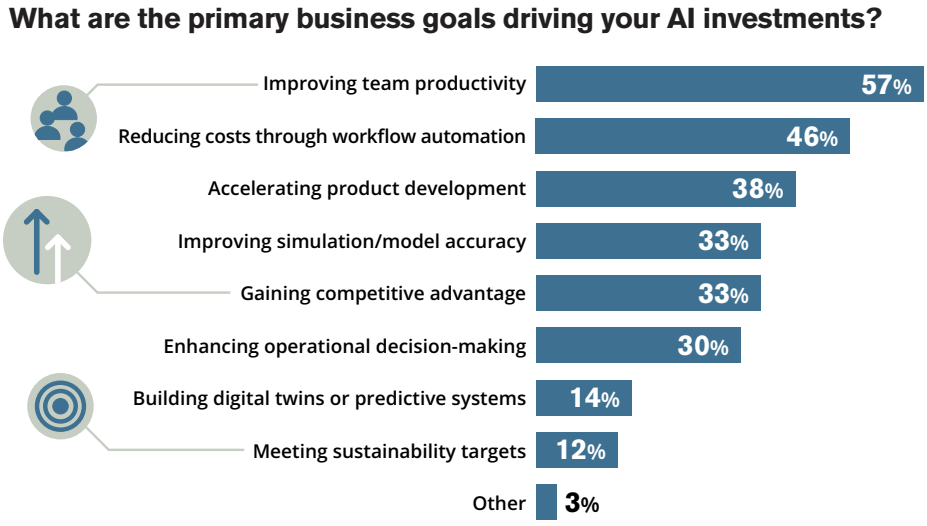


FIGURE 10



CONCLUSION

DE247's research shows how R&D teams are redefining digital maturity as they face rising pressure to deliver results faster and manage greater complexity. Nearly half are investing in AI and automation to improve simulation workflows, while others are strengthening data quality, governance and collaboration between IT and engineering. The findings reveal a shared goal of developing connected, resilient engineering operations that leverage technology to stay agile in a fast-moving world.

The convergence of AI adoption, data intelligence, and modeling and simulation innovation points to a fundamental shift in how engineering teams work. Organizations that unite cloud computing power, intelligent data management, and applied AI into a single platform are already seeing measurable results: faster development cycles, improved collaboration, and the ability to transform decades of simulation data into actionable insights.

With the introduction of Rescale Data Intelligence, organizations can build unified data foundations that automatically capture and organize simulation metadata, deploy agentic automation to transform data into action, and accelerate discovery with AI physics methods, and all while maintaining ownership of their institutional knowledge and IP. This integrated approach enables engineers and scientists to spend less time managing tools and data, and more time driving the innovations that will shape tomorrow's products and breakthroughs.

ABOUT RESCALE

Rescale is a digital engineering platform to power accelerated product development and R&D. Rescale advances innovation through new product development and R&D by providing a digital engineering platform that integrates cloud high-performance computing resources, intelligent data management tools, and applied AI to accelerate modeling and simulation.

Rescale's platform delivers the industry's largest network of engineering and R&D applications, automated workflows, and computing infrastructure to enterprises. The industries shaping the future are building on Rescale—including aerospace, automotive, energy, life sciences, semiconductor, manufacturing, and the public sector.

With the launch of Rescale Data Intelligence, the platform now empowers engineers and scientists to harness modeling and simulation data to improve efficiency and accelerate innovation—transforming how teams capture knowledge, uncover insights, automate workflows, and deploy AI to bring new products and breakthroughs to market faster.

READY TO ACCELERATE YOUR R&D WITH INTELLIGENT AUTOMATION AND AI-POWERED INSIGHTS?

Discover how Rescale's expanded platform can transform your modeling and simulation workflows. Visit Rescale.com to learn more about Rescale Data Intelligence, or contact our team to see how leading organizations are cutting development cycles by 50%, increasing data reuse by 4-5x, and compressing months of work into hours.

ABOUT THE SURVEY PARTICIPANTS

Based on input from engineers, managers, C-level executives, and directors working in fields like manufacturing, aerospace, automotive, and government (among others), Rescale's and DE247's new survey presents a well-rounded view of the current state of modeling and simulation. The majority of respondents either work directly in modeling and simulation (43%) or oversee employees who do (33%). Most are either primary decision-makers (28%), provide input or technical evaluation (29%), or influence the decisions for purchasing engineering tools and platforms.

FIGURE 11

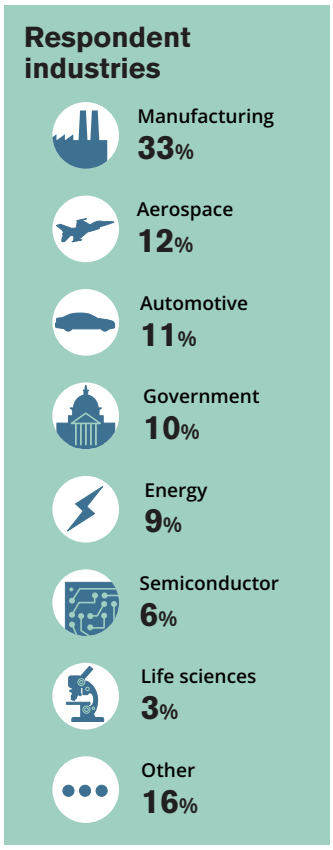


FIGURE 12

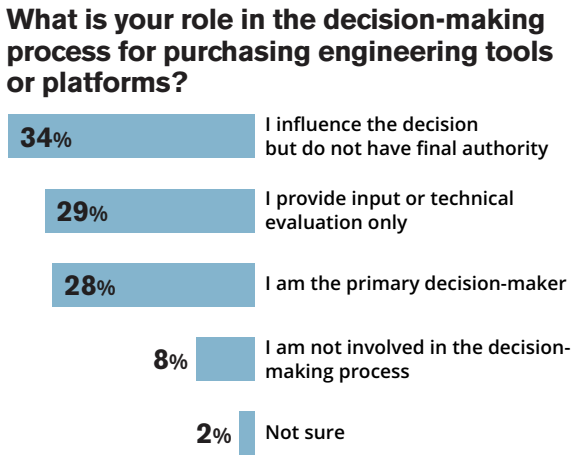


FIGURE 13

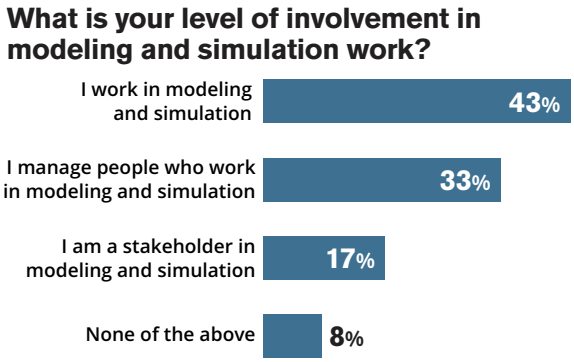


FIGURE 14