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China Speed: Q&A with Monolith

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How Western automakers are using AI to narrow China's speed advantage in development.

Source: Getty Images/breifbluesky

China Speed has become one of the defining themes in the global automotive industry, particularly as US and European original equipment manufacturers look to close the gap with increasingly competitive Chinese manufacturers. While the discussion often centers on lower costs and shorter development cycles, suppliers are seeing the differences far more directly in day-to-day program execution. The gap is most visible not in engineering capability itself, but in how quickly organizations can turn data into decisions.

Chinese OEMs are widely perceived as operating with less organizational friction, enabling faster iteration, quicker software integration and more streamlined validation processes. By contrast, many Western OEMs still rely on legacy workflows, fragmented data systems and highly manual review cycles that slow program momentum. Suppliers increasingly report that engineering teams spend too much time validating and moving data rather than acting on insights.

However, the industry narrative is beginning to evolve. Rather than attempting to replicate Chinese development models outright, Western OEMs are focusing on making existing expertise more scalable through AI-enabled workflows, predictive simulation and improved data integration. The objective is not simply faster product development, but faster learning, using decades of accumulated engineering knowledge more effectively across programs.

As AI tools become embedded within validation, calibration and root-cause analysis workflows, suppliers are seeing early signs of a more realistic Western version of China Speed emerge: one that combines automation and rapid iteration with the engineering rigor and safety standards long associated with established OEMs. To explore these trends further, we spoke with Sam Emeny-Smith, head of automotive at Monolith. Monolith empowers engineering teams to build self-learning models, reducing testing time and improving product quality.

Sam Emeny-Smith

[Source: Monolith]

The following is an edited transcript of the conversation.

S&P Global Mobility: China Speed is often associated with faster development cycles and rapid iteration. From Monolith's perspective, where is the gap most visible today in engineering and validation workflows?

Sam Emeny-Smith: The most visible gap is how quickly teams can turn engineering data into

confident decisions.

Western OEMs generate enormous volumes of test data, whether from durability rigs, crash, [noise, vibration and heat], thermal or aero, but the workflow wrapped around that data is still largely manual. A test completes, and then engineers spend days validating the result, hunting for anomalies, working out which parameters actually drove the outcome, and debating whether another test is even needed. The physics is fast. The decision loop is slow.

The faster organizations have compressed that loop. They move from question, to test, to insight, to decision with far less friction, and increasingly they let models, not just meetings, tell them which test matters next.

So yes, China Speed is partly about cadence. But cadence without confidence just produces fast guesses. The real differentiator is how quickly a team can prioritize effort and commit to the next step with conviction, and that comes from making sense of the data you already have rather than simply running more tests. That is the part of the problem AI is built to solve.

Are Chinese OEMs approaching AI-driven engineering, test data utilization, or decision-making differently from Western OEMs? What differences stand out most clearly in practice?

I would avoid reducing this to one regional stereotype, because there is significant variation on both sides. But in practice, we do see a difference in appetite for iteration and workflow change.

Many Chinese OEMs have grown up in a much more software-led, fast-moving competitive environment. That can make them more willing to integrate new tools quickly into live workflows and adapt processes around them. In some Western organizations, the engineering culture has been shaped by decades of very established validation procedures, which do exist for good reasons, but can make change slower.

Considering those cultural and professional disparities, Western OEMs shouldn't go about their business by trying to copy Chinese OEMs. Making existing engineering expertise more scalable and connected within an ecosystem philosophy they're more accustomed to is a far smarter strategy. In our view, ultimately it comes down to how quickly data is made usable and how comfortable teams are bringing AI into the decision-making workflow.

Which parts of the traditional Western vehicle development process create the greatest bottlenecks today, and where can AI tools most realistically reduce program timelines?

The most visible bottlenecks are validation and root cause analysis. Because these are high stakes decisions, teams build conservative processes around them, which tends to mean oversized test matrices, repeated physical tests and long review cycles. Engineers spend too much of their time just checking whether data can be trusted rather than acting on it.

The deeper issue, though, is data integration. A lot of the Western test estate is old, with legacy formats and data that has to be converted and hand carried before anyone can use it, and that manual work is where the days disappear. Part of what has helped the faster players in China is timing. Many industrialized later and built modern pipelines from the start, with far less manual transfer in between. When you are capturing this much data, that plumbing is what decides whether you can move quickly at all.

This is why order of operations matters. You get the most out of AI once the data and workflows

underneath it are solid. Then the tools pay off fast. Test plan optimization shows which tests are worth running, anomaly detection validates data earlier, root cause tools surface the signals that actually mattered, and calibration models explore thousands of conditions in a fraction of the time. The aim throughout is to keep the engineer's judgement in the loop, so your best people spend their time deciding rather than hunting for information.

How important is faster access to engineering insight – through machine learning, automated analysis, or predictive models – in helping Western OEMs compete more effectively with Chinese rivals?

The honest starting point is that China has built a real speed advantage, partly because so many of its programs were set up recently around modern, AI-ready data pipelines. The West will not win by trying to copy that cadence directly. Competing on China's terms, on raw speed alone, is a hard game to win.

Where the West has a genuine and hard to replicate edge is in everything it has already learned. Decades of engineering expertise and historical test data represent enormous accumulated knowledge, and that is not something a newer rival can simply spin up. The problem today is that most of this knowledge sits locked in old formats and past programs, where it is difficult to reuse at speed.

That is exactly where AI changes the competitive picture. It lets a team connect that history to the question in front of them now, so a new design decision is informed by everything the organization has ever tested rather than starting close to scratch each time. The opportunity for Western OEMs is not to out-sprint China, but to compound their experience faster than rivals can accumulate it.

The one thing that cannot be traded away for speed is trust. In safety critical development, insight has to be explainable, not just fast, which is why good engineering AI works more like a compass than a GPS. It guides engineers toward the right part of the design space while keeping judgement firmly with the expert. That is a race the West is actually positioned to win.

Looking ahead three to five years, what do you think a realistic Western version of China Speed looks like from an engineering development and software capability standpoint?

A realistic Western version of China Speed is less about raw cadence and more about removing the friction that slows rigorous engineering down. In three to five years, the strongest OEMs will have AI built into the engineering process rather than bolted on, with software developed alongside the hardware rather than arriving late in the program.

Much of that comes down to simulation and AI-based prediction, understanding how something performs in the real world before you build it. Once you can do that, your blocker stops being real world time and becomes compute, and the more compute you bring, the more scenarios you run and the more you learn before anything reaches a vehicle, from engine calibration to autonomy.

The real inflection point is trust. Today the models inform the engineer, but many teams still run physical validation alongside them because they are not yet ready to rely on the result. That experimental phase is largely over, and what comes next is the shift into the workflow itself, where teams cut larger portions of the test plan, accept an AI-validated result instead of re-running it, and approve or reject designs on the strength of simulation. That is where the step change in speed comes from, and it stays expert-led throughout, because it is the engineer's judgement deciding when the evidence is good enough.

This is the period where the West gets to reap what has already been proven. Its real advantage is its people and the depth of engineering judgement built over a long history, and the opportunity now is to put far more capable tools in their hands so that judgement reaches across more of the problem. The OEMs that move first will not just be faster. They will learn faster than anyone else, and in this industry, that is what it means to lead.

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