3DEXPERIENCE DISCOVERY DAY 2026

AI SUMMARY

KEYNOTE: AI FACTORY DIGITAL TWINS: FROM DESIGN AND SIMULATION TO BUILD AND OPERATIONS



KEY TAKEAWAYS

Using SaaS to Accelerate Agentic AI Adoption

Building Physical AI with Synthetic 3D Training Data

Securing Proprietary Data while Scaling Physical AI

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Keynote: AI Factory Digital Twins: From Design and Simulation to Build and Operations
Thursday, November 12, 2026

SUMMARY

AI agents and “physical AI” are rapidly reshaping how complex products are designed, simulated, and brought into production. The session opened with a focus on starting from the business challenge rather than the technology, highlighting how software-as-a-service can shorten the distance between newly released capabilities and what end users actually experience. From there, speakers explored an ecosystem view of AI: indirect partner models, cloud-delivered tools, and GPU-accelerated computation combining to unlock new possibilities for engineering and manufacturing organizations.

The speaker described working in an indirect partner model: the AI hardware company supplies GPUs and software libraries, while partners embed these pieces into applications such as virtual engineering companions, design agents, and high-performance simulation tools. Another framed “physical AI” as models and agents that understand and act in the physical world, including vision systems on production lines and robots in factories. With European manufacturing output around six trillion euros annually, the potential productivity gains from applying physical AI at scale are enormous.

The narrative traced modern AI’s acceleration back to 2012, when a research team used GPUs to train a deeper neural network that dramatically improved image recognition accuracy. That breakthrough showed parallel GPU computing could efficiently handle large matrix operations, catalyzing rapid advances in perception applications like speech, image, and video understanding. More recently, transformer-based generative and agentic models have become exceptionally good at working with one-dimensional text and two-dimensional visual data, once supplied with sufficient training examples to learn complex patterns.

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Extending these capabilities into three-dimensional space remains difficult because accurate physical-world training data are scarce. Few factories or mines have systematically recorded how humans assemble, operate, and inspect equipment, making it hard to train models that reliably map input tokens—images or text—into correct action tokens in the real world. Speakers emphasized two paths forward: capturing more real-world demonstrations and, crucially, generating synthetic data through high-fidelity simulation, with agents helping create virtual environments, run scenarios, and iterate on product designs.

Security, sovereignty, and control over proprietary engineering data were recurring themes. One technology provider introduced an open-source "agent shell" that lets organizations deploy their agents on-premises, in trusted hosted environments, or within national cloud providers, keeping sensitive design and operations data close. Participants argued that internal CAD models, simulations, and production records—data not exposed to large public training runs—are now a crucial competitive asset. By combining these assets with physics-based simulation, firms can fine-tune physical AI models customized to their own equipment.

To illustrate the future, the session closed with a case where a humanoid robot was trained entirely in a simulated automotive factory before deployment, using partner software, GPUs, and agents to generate realistic synthetic data. This "flywheel" from design to virtual validation and fleet operation shows how quickly physical AI is maturing. Speakers expressed both excitement and healthy unease at the pace of change, urging manufacturers to experiment now with agents, simulation, and secure AI infrastructure to capture the emerging value.

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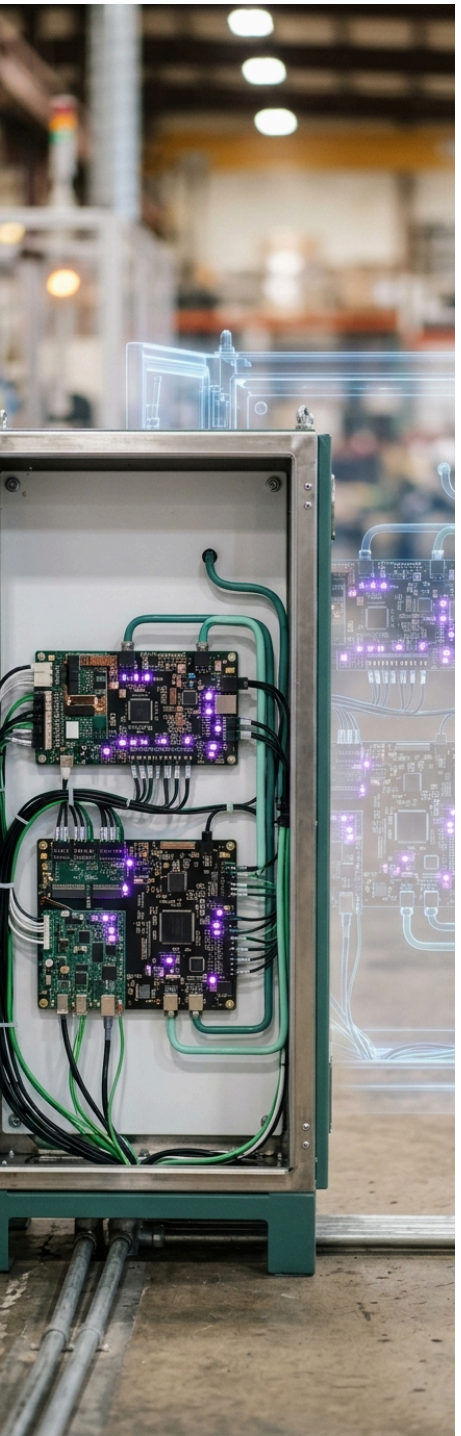

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KEY TAKEAWAYS

Using SaaS to Accelerate Agentic AI Adoption

Teams are urged to start from the business challenge, then select technology, using SaaS to minimize the gap between new AI capabilities and user experience. Frequent cloud updates let virtual companions and agentic features reach customers quickly, enabling faster experimentation and measurable impact.

Building Physical AI with Synthetic 3D Training Data

Physical AI extends agentic systems into the real world but depends on accurate 3D training data and correct action tokens. Because such data is scarce, organizations increasingly use simulation, digital twins and synthetic datasets to train models that understand physics and manufacturing constraints.

Securing Proprietary Data while Scaling Physical AI

Organizations retain ownership of proprietary engineering data while deploying agents securely in their own environments using open agent shells. By combining partners' GPUs, world models and simulation tools, they create bespoke physical AI for robotics, mining and factories, turning data into durable advantage.

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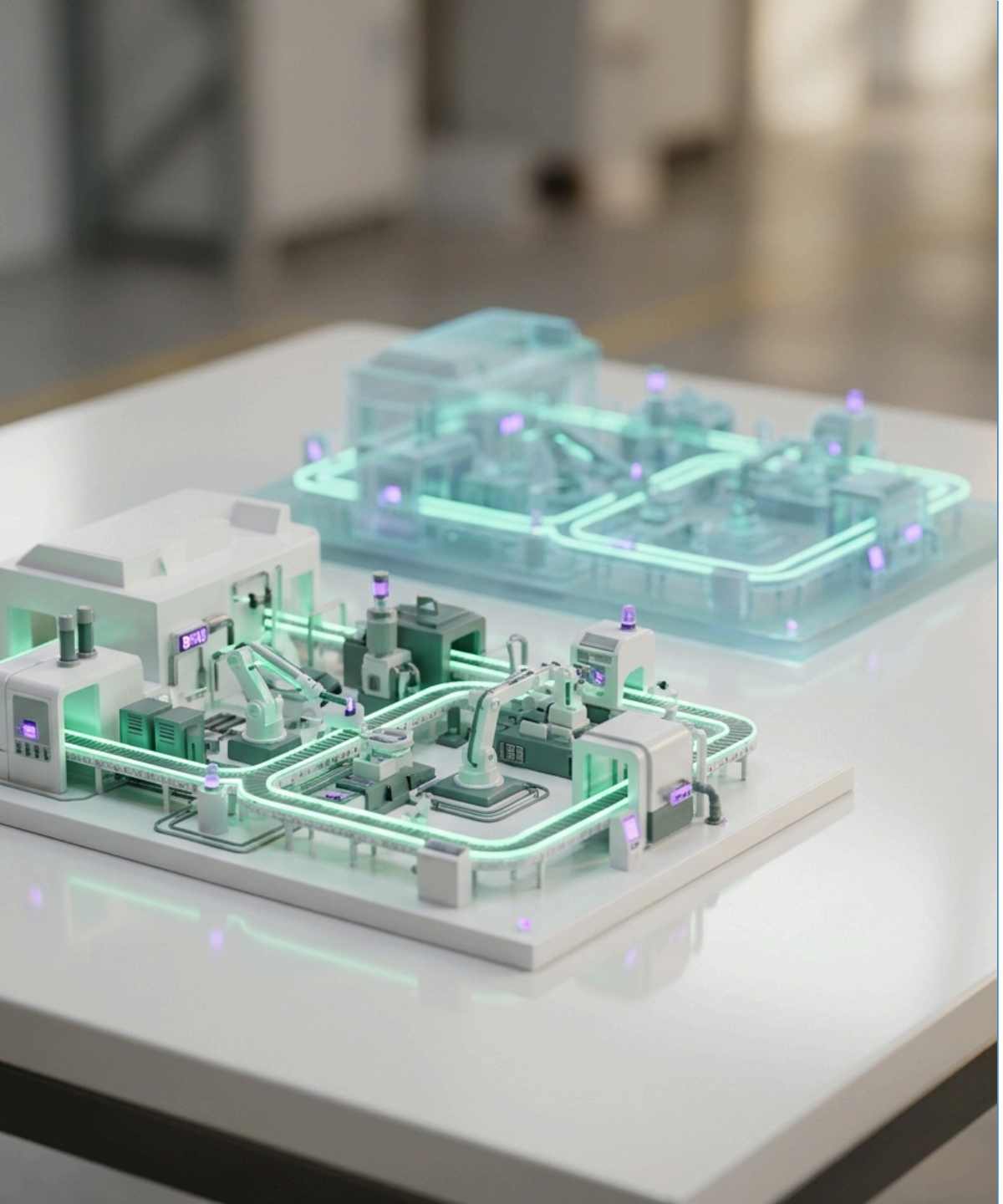

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