Tata Consulting Engineers Launches Cognitive Digital Twin and Industrial AI Platform Built on NVIDIA Technology

Tata Consulting Engineers launches an NVIDIA-powered Cognitive Digital Twin platform to embed Industrial AI across manufacturing, energy and infrastructure.

By **TRT Editorial**
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Key Highlights – TCE Launches Cognitive Digital Twin & Industrial AI Platform

- Platform Built on NVIDIA Technology: Tata Consulting Engineers has launched a Cognitive Digital Twin and Industrial AI platform powered by NVIDIA Accelerated Computing and NVIDIA Omniverse libraries.

- Engineering-Grade Digital Twins: The platform enables high-fidelity, real-time digital twins that mirror, simulate, and optimise complex industrial systems across manufacturing, energy, and infrastructure sectors.

- Lifecycle-First AI Integration: Cognitive Digital Twins are embedded from concept and FEED stages through construction and operations, ensuring AI is intrinsic to asset design and performance.

- Focus on Real-World Outcomes: The platform targets safety monitoring, quality inspection, predictive maintenance, energy optimisation, and sustainable infrastructure performance through Industrial AI.

Tata Consulting Engineers (TCE), a Tata Group company and India's largest private sector pure play engineering and consulting organisation, today announced the launch of its **Cognitive Digital Twin and Industrial AI platform. Built on NVIDIA Accelerated Computing and the NVIDIA Omniverse libraries**, the platform is designed to embed Industrial AI and engineering-grade Cognitive Digital Twins across manufacturing, energy, and infrastructure, enabling data-driven decision-making throughout the full lifecycle of industrial assets.

At the core of the platform is **TCE's Cognitive Twin framework, built on NVIDIA libraries and open models, which enables high-fidelity, real-time, AI-driven digital twins that mirror, simulate and optimise physical systems.** These digital twins function as living representations of complex industrial environments, integrating engineering data with operational intelligence to support precision, reliability and performance.

The platform strengthens TCE's position as an engineering-led execution partner for Industrial AI by combining NVIDIA Omniverse libraries, NVIDIA NIM microservices, part of NVIDIA AI Enterprise, as well as open NVIDIA Cosmos and NVIDIA Nemotron models, with deep expertise in engineering design, project delivery and full asset lifecycle management.

Pilot implementations are being executed with National High Speed Rail Corporation Limited, the implementing agency for India's high-speed rail programme, Torrent Power, an integrated power utility company, and Power Grid Corporation of India Limited, India's central transmission utility, demonstrating a shift from static digital models to cognitive digital twins that actively support operational decision making and sustainable engineering outcomes.

By embedding Cognitive Digital Twins at the concept and FEED stages, operational requirements such as safety, reliability, maintainability and energy efficiency are addressed early in the design process. This enables informed capital investment decisions and improves long-term operational performance once assets are in operation.

The platform enables industries to move beyond isolated AI experiments and embed AI directly into factories, power systems and critical infrastructure. The focus is on outcomes that matter on the ground, including safety, quality, reliability, precision,

sustainability and energy efficiency, with Cognitive Digital Twins supporting both engineering decisions and operational performance.

As an engineering design and consulting organisation, TCE embeds Cognitive Digital Twins and Industrial AI into assets from inception rather than applying AI after systems are built. This lifecycle-first approach ensures that Industrial AI becomes intrinsic to how assets are conceived, delivered and operated.

The platform addresses high-impact Industrial AI use cases across safety monitoring, quality inspection, reliability and predictive maintenance, energy optimisation and digital twin-driven operations. It aligns with global priorities around manufacturing competitiveness, infrastructure modernisation, the energy transition, and operational resilience, and with NVIDIA's vision for AI factories, physical AI, and real-world industrial digital twins.

Commenting on the launch, **Mr Amit Sharma, Managing Director and Chief Executive Officer, of TCE** said, *"Industrial AI must be engineered into assets, not added later. As an engineering organisation, we have the unique ability to embed Cognitive Digital Twins at the design stage and carry them through construction, commissioning and operations. Built on NVIDIA technology, this platform brings Industrial AI into the heart of factories, power systems and infrastructure, delivering outcomes that matter in the real world."*

"The industrial landscape is undergoing a fundamental transformation as AI moves decisively from the digital realm into the physical world. Leveraging NVIDIA accelerated AI infrastructure, NVIDIA Omniverse libraries, and open NVIDIA Cosmos and NVIDIA Nemotron models, TCE is a leader in advancing the safety, efficiency, and sustainability of critical industrial infrastructure," said **Vishal Dhupar, Managing Director, Asia South, NVIDIA**. The launch marks an important step in the evolution of Industrial AI adoption. By embedding Cognitive Digital Twins and AI across the full lifecycle of industrial assets, Tata Consulting Engineers is laying the foundation for safer, more reliable, more efficient and more sustainable industrial systems.