

Tata Consulting Engineers Introduces Cognitive Digital Twin and Industrial AI Platform

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Amit Sharma, Managing Director and CEO of Tata Consulting Engineers

Tata Consulting Engineers (TCE), part of the Tata Group, has launched a new Cognitive Digital Twin and Industrial AI platform designed to support smarter decision-making across manufacturing, energy, and infrastructure projects. Built on accelerated computing technology from NVIDIA, the platform integrates engineering-grade digital twins with artificial intelligence throughout the lifecycle of industrial assets.

At the centre of the solution is TCE's Cognitive Twin framework, which creates high-accuracy digital models that mirror and simulate real-world systems in real time. These models combine engineering data with operational insights, allowing companies to improve reliability, efficiency, and performance across complex industrial environments.

The platform combines NVIDIA Omniverse libraries, NIM microservices, and open AI models with TCE's expertise in engineering design, project execution, and asset lifecycle management. Pilot projects are already underway with National High Speed Rail Corporation Limited, Torrent Power, and Power Grid Corporation of India Limited, where the technology is being used to move from static digital models to intelligent systems that actively support operational planning and performance.

By introducing digital twins early in project planning and front-end engineering stages, companies can address safety, reliability, maintenance, and energy efficiency requirements before construction begins. This approach helps optimise capital spending and improves long-term operational outcomes.

The new platform enables industries to embed AI directly into factory operations, power networks, and infrastructure projects. It supports applications such as safety monitoring, quality inspection, predictive maintenance, energy management, and performance optimisation. The goal is to make AI a built-in element of industrial systems rather than an add-on introduced after projects are completed.

Amit Sharma, Managing Director and CEO of Tata Consulting Engineers, said Industrial AI should be integrated from the design stage through commissioning and operations to deliver real-world benefits. He added that the platform is designed to improve efficiency, safety, and sustainability across critical industrial assets.

Vishal Dhupar, Managing Director for Asia South at NVIDIA, said the collaboration demonstrates how AI technologies are moving beyond software into physical industrial environments, improving infrastructure performance and sustainability.

The launch marks a step forward in adopting Industrial AI in India and globally, with TCE aiming to support safer, more efficient, and more resilient industrial systems through intelligent digital modelling. TCE is one of India's leading engineering consultancies, providing integrated and sustainable advanced facility solutions across infrastructure, power, hydrocarbons and chemicals, and metals and mining sectors. With more than six decades of experience, TCE offers end-to-end services—from concept to commissioning—serving as an Owner's Engineer and Project Consultant under its OEPC model. The company is driven by a strong commitment to innovation, efficiency, and digital transformation.

AMIT SHARMA , nvidia , TCE , VISHAL DHUPAR

