Tata Consulting Engineers launches cognitive digital twin and industrial AI platform built on NVIDIA technology

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NEWS

Tata Consulting Engineers (TCE), a Tata Group company and engineering consultancy, has launched a Cognitive Digital Twin and Industrial AI platform built on NVIDIA accelerated computing and Omniverse libraries. The platform aims to enable engineering-grade digital twins and AI-driven decision-making across manufacturing, energy and infrastructure sectors by integrating operational intelligence throughout the lifecycle of industrial assets.

At the centre of the platform is TCE's Cognitive Twin framework, designed to create high-fidelity digital representations capable of simulating, analysing and optimising complex physical environments in real time. By combining engineering data with AI-driven analytics, the platform is intended to support improved safety, reliability and performance outcomes across industrial operations.

TCE said the solution brings together NVIDIA Omniverse libraries, NVIDIA NIM microservices, and open NVIDIA Cosmos and NVIDIA Nemotron models with its engineering design and lifecycle management capabilities. Pilot implementations are underway with organisations including National High Speed Rail Corporation Limited, Torrent Power and Power Grid Corporation of India Limited, demonstrating the transition from static digital models to cognitive digital twins that actively inform operational decision-making.

The platform is designed to embed digital twin capabilities during the concept and front-end engineering design (FEED) stages, allowing operational considerations such as safety, maintainability, energy efficiency and reliability to be addressed early in project planning. According to the company, this lifecycle-first approach helps organisations make more informed capital investment decisions while improving long-term asset performance.

By integrating industrial AI into engineering workflows from the outset, TCE aims to enable industries to move beyond isolated AI pilots and embed intelligence directly into factories, power systems and critical infrastructure. Key use cases include safety monitoring, quality inspection, predictive maintenance, energy optimisation and digital twin-driven operational management.

Amit Sharma, Managing Director and Chief Executive Officer at Tata Consulting Engineers, said the platform reflects a shift towards embedding AI capabilities at the design stage rather than applying them retrospectively. Vishal Dhupar, Managing Director, Asia South at NVIDIA, noted that the initiative highlights the growing convergence of AI and physical industrial systems, supporting safer and more efficient infrastructure operations.

The launch aligns with broader industry trends around industrial digitalisation, energy transition initiatives and the use of AI-driven digital twins to enhance operational resilience and sustainability.