Title: *"Enabling the Quantum Leap: India's Indigenous Drive for Quantum-Enabling Technologies"*

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Abstract: *As quantum computing rapidly moves from theoretical concepts to practical, scalable implementations, the focus is increasingly shifting towards the development of essential quantum peripherals. These crucial components, including control electronics, cryogenic interfaces, qubit calibration systems, and error-correction enablers, are vital for unlocking the full potential of quantum applications. Without these sophisticated supporting technologies, the promise of quantum computing remains largely out of reach. In his talk, Dr. Sudarsan will highlight C-DAC's involvement in India's strategic initiatives aimed at building an indigenous ecosystem of these quantum-enabling technologies. He'll delve into the nation's progress in areas like simulation platforms, advanced quantum-classical interfaces, and specialized tools for algorithmic acceleration. The session will delve into the critical role these peripherals play in bridging the gap between abstract quantum theory and real-world applications in diverse fields such as cryptography, materials science, drug discovery, and optimization. This discussion will ultimately highlight how collaborative and cross-disciplinary efforts are essential to securing India's leadership in the rapidly expanding field of quantum technology.*