

B'luru at centre of India's ₹6,003-cr quantum mission

With multiple leading institutions pioneering quantum projects, city emerges as key centre playing pivotal role in placing India at forefront of global quantum race

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India has taken a decisive step into the future of advanced computing with the launch of the National Quantum Mission (NQM), an ambitious eight-year programme with an outlay of Rs 6,003.65 crore. The mission seeks to position the country among the world leaders in quantum technologies, and Bengaluru has emerged as the nerve centre of this effort.

IISc hosts Quantum Computing T-Hub

According to data shared by the Centre in a Lok Sabha reply recently, four Thematic Hubs (T-Hubs) are being established in 2024-25, focusing on Quantum Computing, Quantum Communication, Quantum Sensing & Metrology, and Quantum Materials & Devices. The Quantum Computing T-Hub has been set up at the Indian Institute of Science (IISc), Bengaluru, comprising six technical groups with 30 researchers and 21 institutions across India, involving both government and private players.

B'luru's role in cutting-edge research

Several pioneering projects are underway in the city. The Raman Research Institute in Bengaluru is working on neutral atoms, while the Indian Institute of Science is spearheading photonic technology development. These



Indian Institute of Science (IISc), Bengaluru, is a crucial part of the National Quantum Mission

efforts complement parallel projects in Mumbai and Pune addressing challenges such as qubit design, error correction, and scalability—crucial steps toward building indigenous and globally competitive quantum systems, the Lok Sabha data said.

Homegrown quantum innovation

The Department of Science and Technology (DST) has already backed a range of indigenous projects. Notably, startups supported under NQM are making breakthroughs, including the development of a 25-qubit quantum processor based on superconducting technology. The Tata Institute of Fundamental Research (TIFR), in collaboration

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with the Department of Atomic Energy and DRDO, has successfully tested a 6-qubit system with an indigenous processor, marking a significant milestone for India's quantum roadmap.

Timelines and deliverables

The mission has been structured with three key timelines—3, 5, and 8 years. Within three years, the aim is to build intermediate-scale quantum computers with 20-50 physical

qubits, scaling up to 1000 qubits by the eighth year. A call for proposals has been launched to support cutting-edge research in quantum algorithms and startups to ensure scalability and practical applications in fields like communication security, healthcare, and finance.

Nerve centre of India's quantum push

With IISc, Raman Research Institute, and the Jawaharlal Nehru Centre for Advanced Scientific Research among the leading institutes involved, Bengaluru has firmly established itself as the nerve centre of India's quantum journey. The city's ecosystem, blending academic excellence with startup innovation, is expected to be pivotal in placing India at the forefront of the global quantum race.