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Karnataka to launch Quantum Mission (KQM) in phases

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To position Karnataka as a leader across the quantum technology value chain in 4 phases



Following footsteps of the government of India, which has launched the National Quantum Mission (NQM) in April 2023 with a budget outlay of Rs 6,003 crore, Karnataka government under the leadership of Siddaramaiah, the Chief Minister of Karnataka announced Karnataka Quantum Roadmap and soon will launch of Karnataka Quantum Mission (KQM), coordinated by Department of Science & Technology under phase 1 of the Quantum Roadmap at the country's first Quantum India Bengaluru (QIB) 2025 summit held recently.

The Karnataka state is planning to leverage its very distinguished legacy in fundamental science to push the frontiers of quantum technologies to position Karnataka as a leader across the quantum technology value chain in 4 phases. Phase 1 includes Foundation, Infrastructure & Capacity Building. Phase 2, 3 and 4 will focus on Operationalising, R&D & Pilots; Manufacturing & Commercialization and Quantum Powerhouse and Export Destination respectively.

The key objective of the KQM is to publish the Karnataka Quantum Policy (KQP), detailing incentives and interventions for eligible and interested entities. The KQP will include the launch of a Quantum Hardware Park in Bengaluru. This facility will house a pilot fabrication facility which can serve as a common resource across semiconductor, analog computing, and quantum computing. It will also house cryogenic laboratories essential for developing and testing quantum chips and devices. Startups and deep-tech innovators can leverage this specialized infrastructure to accelerate hardware prototyping, reduce capital expenditure, and collaborate with academia and industry partners.

Besides the KQM will form an International Quantum Advisory Board comprising members from academia, industry and government. The board will include top-tier scientists from outside India, project directors of the NQM hubs, and leading quantum scientists from Karnataka. The state will also constitute a Karnataka Quantum Task Force which will work under the guidance of the advisory board to execute the roadmap in Karnataka.

Aligning with NQM, the state will develop 1000-qubit quantum computers at the Indian Institute of Science (IISc), starting with 8-qubit and then expanding to 1000-qubit over next four years, and other quantum research hubs such as Raman Research Institute (RRI)/ International Centre for Theoretical Sciences (ICTS)/ Indian Institute of Technology (IIT) Dharwad / Indian Institute of Information Technology (IIIT)/others in the state.

Under the KQM the state will identify four Quantum Innovation Zones for the various Quantum themes – Quantum Computing, Quantum Communication, Quantum Sensing & Metrology and Quantum Materials and Devices and sign MoU with the four quantum hubs under NQM to showcase their incubated start-ups and their products at the Quantum Research Park (QuRP) - a Centre of Excellence (CoE) at IISc Bengaluru.

The state will establish partnerships with leading industry partners to develop quantum algorithms, hardware and jointly invest in skilling to build a robust supply side and also on the demand side application of Quantum across healthcare (e.g., drug discovery), fintech and cybersecurity.

To develop skilled workforce in Quantum technology, Karnataka will launch Quantum Skilling Programme across 20+ Tier 1/2 engineering colleges, potentially under Nipuna Skilling Programme, expand Q-Daksha and Q-Karyashala programs of IISc to cover entire Karnataka and will partner with international universities, MNCs and startups working on Quantum technology to scholars, researchers and industrialists with experience in quantum from global markets to work in Karnataka.