

PARLIAMENT QUESTION: NATIONAL QUANTUM MISSION

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The Government periodically reviews the implementation of the National **Quantum** Mission (NQM) through its established governance mechanism, which includes monitoring by Mission Governing Board (MGB), Mission Technology Research Council (MTRC), other expert committees and on-site reviews. In addition, an Annual Quantum Conclave was organized on 10–11 April 2026 to review the progress of the Thematic Hubs, Technical Groups, startups and other Mission activities. During 2025– 26, significant progress was made under the Mission, including:

- i. Operationalization of the four Thematic Hubs (T-Hubs), comprising 14 Technical Groups and 17 Project Teams, with participation from academia, research institutions and industry.
- ii. Research Infrastructure facilities including fabrication and central facilities are being established at IISc Bengaluru, IIT Bombay, IIT Kanpur and IIT Delhi to enable indigenous development of quantum processors, sensors, materials and devices.
- iii. Establishment of 17 dedicated Project Teams under the Quantum Algorithms Technical Group for the development of indigenous quantum algorithms and software.
- iv. Capacity building through Undergraduate Minor and M.Tech. programmes in Quantum Technologies in collaboration with All India Council for Technical Education (AICTE). Further, 23 Quantum Teaching Laboratories are being established across the country, to strengthen education, skill development and human resource capacity.
- v. Entrepreneurship development through support for 17 quantum technology startups for development and commercialization of indigenous quantum technologies.
- vi. Research and technology development activities have commenced across the domains of quantum computing, quantum communication, quantum sensing & metrology, and quantum materials & devices. The Mission supports the development of indigenous quantum technologies and enabling components with potential applications in strategic sectors including secure communications, cybersecurity, healthcare, finance, navigation and precision manufacturing.

Defence Research and Development Organisation (DRDO) has developed indigenous products in Quantum Technologies, for which Technology Transfer (ToT) has been extended to industry. These include Quantum Random Number Generators (QRNGs) and RFSoc-based Controller for Quantum Computer Processors (RCQCP). DRDO is also promoting research, innovation and industry-academia collaboration in Quantum Technologies through the following initiatives:

- o Technology Development Fund (TDF) Scheme, which provides grant-in-aid support to MSMEs and startups for the development of indigenous defence technologies under the Indian Designed, Developed and Manufactured (IDDM) framework.

- DRDO Industry Academia Centres of Excellence (DIACoEs) established at various IITs, IISc and Central Universities to promote collaborative research in Quantum Technologies.
- Contract for Acquisition of Research Services (CARS), under which DRDO laboratories engage academic and research institutions to undertake research for bridging the gap between basic research and prototype development, leading to technology realization and product development.

Ministry of Electronics and Information Technology (MeitY) has developed Qniverse, a unified quantum computing platform integrated with High Performance Computing (HPC) systems, providing students, researchers and startups access to quantum computing resources for designing, simulating and executing quantum algorithms across multiple quantum hardware platforms.

Indian Space Research Organisation (ISRO), Department of Space, follows structured project review mechanisms, including Baseline Design Review (BDR), Preliminary Design Review (PDR), Critical Design Review (CDR), Standing Peer Review Committee (SPRC) and Expert Review Committee (ERC), for technical review and monitoring of quantum technology projects. ISRO promotes industry-academia collaboration through partnerships with IISc, IITs, NITs, Ahmedabad University and S.N. Bose National Centre for Basic Sciences (SINP). It also conducts Structured Training Programmes (STPs) and workshops on Quantum Technologies for skill development, and has established quantum-ready infrastructure, including quantum and optical laboratories, specialised subsystem laboratories, optical ground stations, and payload and satellite assembly, testing and launch facilities.

Four Thematic Hubs have been established under the National Quantum Mission at leading academic institutions, covering the following domains:

Thematic Hub	Host Institution	Area of Research
Quantum Computing	IISc. Bengaluru (in association with C-DAC), Karnataka	Quantum computing technologies across multiple qubit platforms, including semiconducting, photonic, neutral atom, electron spin and superconducting qubits; quantum algorithms; and enabling technologies.
Quantum Communication	IIT Madras (in association with C-DOT, New Delhi), Tamil Nadu	Quantum communication and cybersecurity technologies, including trusted-node-free hybrid quantum networks, Post-Quantum Cryptography (PQC), quantum repeaters, terrestrial fibre-based Quantum Key Distribution (QKD) networks, and satellite-based quantum communication.
Quantum Sensing & Metrology	IIT Bombay, Maharashtra	Quantum sensing and metrology technologies, including NV centre-based sensors, magnetometers, gravimeters, quantum-enhanced sensors, quantum-enhanced imaging, and precision measurement systems.

Thematic Hub	Host Institution	Area of Research
Quantum Materials & Devices	IIT Delhi, New Delhi	Quantum materials and devices, including quantum dots, spintronic materials, photonic devices and technologies supporting quantum systems.

NQM is a pan-India initiative. Under the Mission, the Quantum Sensing & Metrology Thematic Hub has been established at IIT Bombay, Maharashtra, and a Quantum Teaching Laboratory has been established at Visvesvaraya National Institute of Technology (VNIT), Nagpur to strengthen quantum research, education and skill development in Maharashtra.

This information was given by the Minister of State (Ind. Charge) Science & Technology; Earth Sciences and Minister of State PMO; Personnel, Public Grievances and Pensions; Department of Atomic Energy and Space Dr. Jitendra Singh in a written reply in Lok Sabha today.

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