GOVERNMENT OF INDIA
MINISTRY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF SCIENCE AND TECHNOLOGY
RAJYA SABHA
STARRED QUESTION NO. 159
ANSWERED ON 13/03/2025

GOVERNMENT FUNDING ON INNOVATION AND RESEARCH IN EMERGING TECHNOLOGIES

*159   SHRI S NIRANJAN REDDY:

Will the Minister of SCIENCE AND TECHNOLOGY be pleased to state:

(a)   the details of specific financial allocations by Government towards R&D in emerging technologies such as quantum computing, AI and robotics in the last three years;

(b)   whether Government has established or plans to establish dedicated research institutions or innovation hubs to focus on the development of quantum computing, AI and robotics, if so, the details thereof and if not, the reasons therefor; and

(c)   Government's support mechanisms for startups working on innovations in quantum computing, AI and robotics, including grants, funds and tax incentives and the number of such startups which have received Government support in the last three years?

ANSWER
MINISTER OF STATE (INDEPENDENT CHARGE) FOR THE
MINISTRY OF SCIENCE AND TECHNOLOGY & EARTH SCIENCES
(DR. JITENDRA SINGH)

(a) to (c):   A statement is laid on the Table of the House.

STATEMENT AS REFERRED IN REPLY TO PARTS (a) TO (c) OF RAJYA SABHA STARRED QUESTION NO. 159 FOR 13.03.2025 REGARDING GOVERNMENT FUNDING ON INNOVATION AND RESEARCH IN EMERGING TECHNOLOGIES

(a):   The details of specific financial allocations by Government towards R&D in emerging technologies such as quantum computing, AI and robotics in the last three years, are given below:

1. Department of Science & Technology (DST):

    - DST is spearheading the National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS). Under this Mission, 25 Technology Innovation Hubs (TIHs) have been established at leading academic institutions across the country, each focusing on an advanced technology vertical. Among these TIHs, four (04) specifically target Quantum Technologies, AI, Robotics and Collaborative Robotics (Cobotics). Their financial allocations over the past three years are as follows:

S. No.	TIH Name	TIH's technology vertical	Financial allocation over the past three years (in Rs. Crore)
i.	I-Hub Quantum Technology Foundation, IISER Pune	Quantum Technologies	80.38
ii.	AI4ICPS I-Hub Foundation, IIT Kharagpur	Artificial Intelligence and Machine Learning	2.20
iii.	I-Hub For Robotics & Autonomous Systems Innovation Foundation, IISc Bangalore	Robotics & Autonomous Systems	91.00
iv.	I-Hub Foundation for Cobotics (IHFC)	Collaborative Robotics (Cobotics)	63.67

    - Under the National Quantum Mission (NQM), being implemented by DST, four Thematic Hubs (T-Hubs) have been established, each focusing on a specific domain of quantum technologies. One (01) out of the four (04) T-Hubs under NQM is dedicated to the technology vertical of Quantum Computing, for which an initial grant of Rs. 3.05 cr has been released.

2. Ministry of Electronics and Information Technology (MeitY)

    - In the field of Quantum Computing, MeitY supports research and development efforts to advance this emerging technology. Over the past three years, MeitY has initiated projects with a total budget outlay of Rs. 148.12 crore in the Quantum Computing domain. These R&D initiatives are primarily supported at research and academic institutions.
    - MeitY is promoting R&D in Electronics and Information Technology in the country through its Digital India Program, to develop new and indigenous technologies/

systems/ software/ tools for addressing various societal, industrial and strategic needs.

- MeitY is also implementing IndiaAI Mission at a total outlay of Rs. 10,371.92 Crores. The Mission is a comprehensive programme for leveraging transformative technologies to foster inclusion, innovation and adoption for social impact as well as to make India a global leader in the AI space and ensure responsible and transformational use of AI for All.
- MeitY has launched Mission Digital India Bhashini with an outlay of Rs. 495.51 crore. The initiative aims to develop core language technologies for speech and text translation for 22 scheduled Indian languages using open source solutions, thereby transcending language barriers in the digital realm. Under Mission Bhashini, a national public digital platform (http://bhashini.gov.in) has been established to proliferate language technology solutions.

3. Ministry of Education

- The Government has approved establishment of three Centres of Excellence (CoEs) in Artificial Intelligence (AI); one each in the areas of health, sustainable cities and agriculture; with a total financial outlay of Rs. 990.00 Cr over the period of FY 2023-24 to FY 2027-28. The fourth CoE in Artificial Intelligence for Education has also been announced in Budget 2025-26.

4. Defence Research & Development Organisation (DRDO)

- DRDO has committed a total of Rs. 688 crore for NQM to be spent by 2032. In addition, DRDO has allocated Rs. 24.00 crore for AI and Rs. 22.7 crore for Robotics to Defence Innovation Accelerator Centres of Excellence (DIA-CoEs).
- Further, Rs. 500 crore have been allocated to DRDO to support emerging deep-tech and cutting-edge technologies under Technology Development Fund (TDF) Scheme.

5. Department of Space (DoS)

- DoS has earmarked Rs. 812.28 crore for NQM to be spent over 8 years, for Research & Development (R&D) on 'Satellite Based Quantum Key Distribution Systems' under Quantum Communication vertical of the mission.

(b):   Yes, Sir. The Department of Science and Technology (DST), under NM-ICPS and NQM, has established innovation hubs to focus on the development of quantum computing, AI and robotics. Four (04) of the TIHs under NM-ICPS specifically target Quantum Technologies, AI, Robotics and Collaborative Robotics (Cobotics). Their details are as given in part (a). Further, one (01) out of the four (04) T-Hubs under NQM is dedicated to the technology vertical of Quantum Computing.

Under Ministry of Defence, Defence Research and Development Organisation (DRDO) has established fifteen (15) DRDO Industry Academia Centres of Excellence (DIA-CoEs) at premier academic Institutes and Universities in the country, to build directed research ecosystem through collaboration among DRDO labs, academia, startups and industries. DIA-CoEs pursue research both in developing the cutting-edge technologies and in the areas of denied defence technologies. In 2018, DRDO established Artificial Intelligence cells in all its laboratories to focus on AI technologies. Defence Young Science Laboratories (DYSL), DYSL-Artificial Intelligence, DYSL-Cognitive Technology & DYSL-Asymmetric Technology were established in Jan 2020 to focus on the development of AI & Robotics.

(c): The following are the Government's support mechanisms for startups working on innovations in quantum computing, AI and robotics, including grants, funds and tax incentives along with the number of such startups which have received Government support in the last three years:

The 25 Technology Innovation Hubs (TIHs) supported under NM-ICPS contribute to "Innovation, Entrepreneurship, and the Startup ecosystem" in the country in CPS domain. The TIHs facilitate access to resources, funding, mentorship, and infrastructural support to startups, in the form of Grants in aid and equity-based funding. So far, a total of 50 start-ups have been supported by the four (04) TIHs working in the area of quantum computing, AI and robotics.

National Quantum Mission (NQM) aims to promote startups and innovation in quantum computing, through an inclusive set of guidelines implemented for this purpose. Eight (08) start-ups in the area of Quantum Technologies have been supported following these guidelines.

DST, under Technology, Translation and Innovation (TTI) Division, implements the National Initiative for Developing and Harnessing Innovations (NIDHI). The program nurtures startups from ideation to commercialization which includes a variety of components for startups, seed funding and accelerators. For institutions, programs such as NIDHI Technology Business Incubator (TBI), NIDHI Inclusive Technology Business Incubator (iTBI) and NIDHI Centre of Excellence provide OpEx and CapEx support for setting up of Startup Incubators. 64 startups working in the area of quantum computing, AI and robotics have been supported under the NIDHI scheme during last 3 years.

Defence Research and Development Organisation (DRDO) under Ministry of Defence has established a Technology Development Fund (TDF) scheme to bring together the public and private sector industries specially MSMEs and startups for development of emerging technologies. DRDO has also worked in collaboration with multiple AI & Robotics startups with 04 companies.

National Institution for Transforming India (NITI Aayog) implements India's flagship initiative - Atal Innovation Mission (AIM), to create and promote a culture of innovation and entrepreneurship in the country. AIM under its Atal Incubation Centre (AIC) program, supports startups across the country, working on innovations in multiple categories including quantum computing, AI and robotics. 72 such AICs are operational across the country and they support startups with seed funding, mentoring, market access, IP and other additional support mechanisms required by the startup.

Ministry of Electronics and Information Technology (MeitY) has envisaged an umbrella scheme GENESIS (Gen-Next Support for Innovative Startups) with a budget of Rs. 490 Crores to discover, support, grow and accelerate successful startups in electronics and IT Sector.

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