

**GOVERNMENT OF INDIA  
MINISTRY OF SCIENCE AND TECHNOLOGY  
DEPARTMENT OF SCIENCE AND TECHNOLOGY  
LOK SABHA  
UNSTARRED QUESTION NO. 4073  
ANSWERED ON 12/08/2026**

**ARTIFICIAL INTELLIGENCE, RESEARCH AND INNOVATION**

**†4073. SHRI HANUMAN BENIWAL:**

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

- (a) whether the various schemes are being implemented in India to promote research and innovation in the fields of Artificial Intelligence, Quantum Technology, Semiconductors, Biotechnology and other Emerging Technologies;**
- (b) if so, the details thereof, State and scheme-wise;**
- (c) whether challenges such as relatively low expenditure on Research and Development (R&D) as a percentage of Gross Domestic Production (GDP), vacant positions of scientists, lack of research infrastructure and brain drain are affecting the pace of research;**
- (d) if so, the concrete steps taken by the Government to address the said problems;**
- (e) whether the Government proposes to set a target to increase the expenditure on Research and Development in a phased manner to at least 2 per cent of the GDP; and**
- (f) if so, the details of the action plan thereof?**

**ANSWER**

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

**(a) to (b):** The Government of India has been promoting research and innovation in the fields of artificial intelligence, quantum technology, semiconductors, biotechnology and other emerging technologies through various schemes and mission mode programmes. The details of some of the major schemes/programme is as below:

| <b>S. No.</b> | <b>Scheme/Programme</b>                                                              | <b>Focus Area</b>                                                                                                                                                      | <b>Budget Outlay</b>       |
|---------------|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| <b>i.</b>     | <b>Research, Development and Innovation (RDI) Fund</b>                               | <b>Deep technologies including quantum computing, robotics and space; Artificial Intelligence; Biotechnology; Digital economy; Energy security and transition etc.</b> | <b>Rs. 1.0 lakh crore</b>  |
| <b>ii.</b>    | <b>National Quantum Mission (NQM)</b>                                                | <b>Quantum Computing, Quantum Communication, Quantum Sensing &amp; Metrology, Quantum Materials &amp; Devices</b>                                                      | <b>Rs. 6,003.65 crore</b>  |
| <b>iii.</b>   | <b>National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS)</b>        | <b>Artificial Intelligence, Quantum Technologies, Robotics, Cybersecurity and other emerging technologies</b>                                                          | <b>Rs. 3,660 crore</b>     |
| <b>iv.</b>    | <b>Biotechnology Research Innovation and Entrepreneurship Development (Bio-RIDE)</b> | <b>Biotechnology, Biomanufacturing and Biofoundry etc.</b>                                                                                                             | <b>Rs. 9,197 crore</b>     |
| <b>v.</b>     | <b>India AI Mission</b>                                                              | <b>Artificial Intelligence</b>                                                                                                                                         | <b>Rs. 10,371.92 crore</b> |
| <b>vi.</b>    | <b>India Semiconductor Mission</b>                                                   | <b>Semiconductor fabrication, packaging, design and semiconductor ecosystem</b>                                                                                        | <b>Rs. 76,000 crore</b>    |

**Under NM-ICPS, 25 Technology Innovation Hubs (TIH) and under NQM 4 Technology Hubs (T-Hub) have been established across the country. Details are at Annexure.**

**(c) to (d): As per the latest “Research and Development Statistics 2025-26” report, brought out by Department of Science and Technology (DST), the Gross Expenditure on Research and Development (GERD) as a percentage of GDP has increased from 0.64% in 2020-21 to 0.84% in 2023-24. In absolute terms, it has been consistently increasing over the years**

and more than tripled from Rs. 79,355.89 crore in 2013-14 to Rs. 2,44,767.81 crore in 2023-24. Further, the government is taking various steps to increase R&D expenditure, strengthen research infrastructure and retain scientific talent in the country. These include: successive increase in allocations for scientific departments; financial assistance to research institutions to carry out basic and applied research to strengthen research capacity, human resource development; and creation of state-of-the-art research infrastructure in the country. DST through schemes like Fund for Improvement of S&T Infrastructure (FIST), Promotion of University Research and Scientific Excellence (PURSE), Sophisticated Analytical Instrument Facilities (SAIF) and Sophisticated Analytical & Technical Help Institutes (SATHI) and Department of Biotechnology (DBT) through its Boost to University Interdisciplinary Life Science Departments for Education and Research (DBT-BUILDER) programme, supports research infrastructure in universities and institutions. The Government through various fellowships like National Post-Doctoral Fellowship (NPDF), Ramanujan Fellowship; INSPIRE Faculty Fellowship, Ramalingaswami Re-entry Fellowship, Biomedical Research Career Programme and MK Bhan-Young Researcher Fellowship is supporting young researchers and also attracting brilliant Indian researchers from abroad to return to India and conduct high quality research. Also, the VAIBHAV fellowship of DST provides a platform for overseas scientists including Non-Resident Indians to undertake collaborative research in Indian institutions and universities.

**(e) to (f):** The Government continues to promote greater investment in research and development through enhanced public funding, increased private sector participation, philanthropic contributions and stronger industry-academia collaboration. The key initiatives towards this include the establishment of the Anusandhan National Research Foundation (ANRF), the creation of the Research Development and Innovation (RDI) Fund to catalyse private investment in research and innovation and supporting policy measures.

**Details of Technology Innovation Hub (TIH) under National Mission  
on Interdisciplinary Cyber-Physical Systems (NM-ICPS)**

| <b>S.No.</b> | <b>Name of the TIH</b>                                                                         | <b>Name of the Vertical</b>                                                                                                    | <b>State</b>          |
|--------------|------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| <b>1</b>     | <b>I-HUB for Robotics and Autonomous Systems Innovation Foundation, IISc Bengaluru</b>         | <b>Robotics &amp; AI Systems</b>                                                                                               | <b>Karnataka</b>      |
| <b>2</b>     | <b>IHUB NTIHAC Foundation, IIT Kanpur</b>                                                      | <b>Cybersecurity</b>                                                                                                           | <b>Uttar Pradesh</b>  |
| <b>3</b>     | <b>IITI Drishti CPS Foundation , IIT Indore</b>                                                | <b>Digital Healthcare</b>                                                                                                      | <b>Madhya Pradesh</b> |
| <b>4</b>     | <b>Technology Innovation in Exploration &amp; Mining Foundation, IIT Dhanbad</b>               | <b>Mining (Exploration to Beneficiation of Minerals)</b>                                                                       | <b>Jharkhand</b>      |
| <b>5</b>     | <b>IIT Kharagpur AI4ICPS I-Hub Foundation, IIT Kharagpur</b>                                   | <b>Artificial Intelligence and Machine Learning</b>                                                                            | <b>West Bengal</b>    |
| <b>6</b>     | <b>TIH Foundation For IOT And IOE , IIT Bombay</b>                                             | <b>Technologies for Internet of Things &amp; Internet of Everything<br/>BharatGen: A Suite of Generative AI Tech for India</b> | <b>Maharashtra</b>    |
| <b>7</b>     | <b>IIIT-H Data I-Hub Foundation, IIIT Hyderabad</b>                                            | <b>Data Banks &amp; Data Services, Data Analysis</b>                                                                           | <b>Telangana</b>      |
| <b>8</b>     | <b>IHUB Drishti Foundation , IIT Jodhpur</b>                                                   | <b>Computer Vision, Augmented and virtual reality</b>                                                                          | <b>Rajasthan</b>      |
| <b>9</b>     | <b>Divyasampark IHUB Roorkee for Devices Materials and Technology Foundation , IIT Roorkee</b> | <b>Device Technology and Materials</b>                                                                                         | <b>Uttarakhand</b>    |
| <b>10</b>    | <b>IIT Patna Vishlesan I-hub Foundation, IIT Patna</b>                                         | <b>Speech, Video &amp; Text Analytics</b>                                                                                      | <b>Bihar</b>          |

| <b>S.No.</b> | <b>Name of the TIH</b>                                                                             | <b>Name of the Vertical</b>                                             | <b>State</b>            |
|--------------|----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|-------------------------|
| <b>11</b>    | <b>IIT Madras Pravartak Technologies Foundation, IIT Madras</b>                                    | <b>Sensors, Networking, Actuator &amp; controls</b>                     | <b>Tamil Nadu</b>       |
| <b>12</b>    | <b>NMICPS Technology Innovation Hub on Autonomous Navigation Foundation (TiHAN), IIT Hyderabad</b> | <b>Autonomous Navigation and Data Acquisition systems (UAV, RoVetc)</b> | <b>Telangana</b>        |
| <b>13</b>    | <b>I-DAPT-HUB Foundation, IIT (BHU) Varanasi</b>                                                   | <b>Data Analytics &amp; Predictive Technologies</b>                     | <b>Uttar Pradesh</b>    |
| <b>14</b>    | <b>IIT Guwahati Technology Innovation and Development Foundation, IIT Guwahati</b>                 | <b>Technologies for Under water exploration</b>                         | <b>Assam</b>            |
| <b>15</b>    | <b>IIT Mandi IHub and HCI Foundation , IIT Mandi</b>                                               | <b>Human Computer Interaction</b>                                       | <b>Himachal Pradesh</b> |
| <b>16</b>    | <b>I-Hub Foundation for Cobotics (IHFC), IIT Delhi</b>                                             | <b>Cobotics</b>                                                         | <b>Delhi</b>            |
| <b>17</b>    | <b>IIT Palakkad Technology Ihub Foundation, IIT Palakkad</b>                                       | <b>Intelligent Collaborative Systems</b>                                | <b>Kerala</b>           |
| <b>18</b>    | <b>IIT Ropar Technology and Innovation Foundation, IIT Ropar</b>                                   | <b>Technologies for Agriculture &amp; Water</b>                         | <b>Punjab</b>           |
| <b>19</b>    | <b>IIITB Comet Foundation, IIIT Bengaluru</b>                                                      | <b>Advanced Communication System</b>                                    | <b>Karnataka</b>        |
| <b>20</b>    | <b>BITS BioCYTiH Foundation , BITS Pilani</b>                                                      | <b>Bio-CPS</b>                                                          | <b>Rajasthan</b>        |
| <b>21</b>    | <b>IDEAS- Institute of Data Engineering, Analytics and Science Foundation, ISI Kolkata</b>         | <b>Data Science, Big Data Analytics and Data curation etc</b>           | <b>West Bengal</b>      |
| <b>22</b>    | <b>IHUB Anubhuti-IIITD Foundation , IIIT Delhi</b>                                                 | <b>Cognitive Computing &amp; Social Censing</b>                         | <b>Delhi</b>            |

| <b>S.No.</b> | <b>Name of the TIH</b>                                             | <b>Name of the Vertical</b>                        | <b>State</b>          |
|--------------|--------------------------------------------------------------------|----------------------------------------------------|-----------------------|
| <b>23</b>    | <b>I-Hub Quantum Technology Foundation, IISER Pune</b>             | <b>Quantum Technologies</b>                        | <b>Maharashtra</b>    |
| <b>24</b>    | <b>IIT Tirupati Navavishkar I-Hub Foundation, IIT Tirupati</b>     | <b>Positioning and Precision Technologies</b>      | <b>Andhra Pradesh</b> |
| <b>25</b>    | <b>IIT Bhilai Innovation and Technology Foundation, IIT Bhilai</b> | <b>Technologies for financial sector (Fintech)</b> | <b>Chhattisgarh</b>   |

**Details of Technology Hub (T-Hub) under National Quantum Mission (NQM)**

| <b>S.No.</b> | <b>Name of the T-Hub</b>        | <b>Name of the Vertical</b>            | <b>State</b>       |
|--------------|---------------------------------|----------------------------------------|--------------------|
| <b>1</b>     | <b>T-Hub at IISc. Bengaluru</b> | <b>Quantum Computing</b>               | <b>Karnataka</b>   |
| <b>2</b>     | <b>T-Hub at IIT Madras</b>      | <b>Quantum Communication</b>           | <b>Tamil Nadu</b>  |
| <b>3</b>     | <b>T-Hub at IIT Bombay</b>      | <b>Quantum Sensing &amp; Metrology</b> | <b>Maharashtra</b> |
| <b>4</b>     | <b>T-Hub at IIT Delhi</b>       | <b>Quantum Materials &amp; Devices</b> | <b>Delhi</b>       |

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