



**Government of India**  
**Ministry of Science & Technology**  
**Department of Science & Technology**  
**(Big Data Initiatives Division)**

Call for proposals under **Big Data Initiatives (BDI)** programme

**The Scheme:** Department of Science & Technology (DST) has recently initiated a new programme to promote Big Data Science, Technology and Applications. For fostering research in this high potential emerging area, a BDI programme support scheme is launched. Following are broad streams under which financial support shall be provided to quality proposals in Grant-In-Aid mode.

- (a) Support for R&D projects
- (b) Support for Establishment of Center for Excellence in Big Data Analytics, Predictive technologies, Cyber Security etc
- (c) Support for national level Conferences/ workshops/ Seminars/ brain storming sessions etc
- (d) Support for Training programmes: In-house training programmes for Faculty/UG/PG/ Doctoral students

Big Data Initiatives Division, solicit proposals in any aspect of above mentioned categories with emphasis on 5Vs (Volume, Velocity, Variety, Value and Veracity) relevant to variety of data that contribute to the Big Data challenges. This includes but is not limited to the following:

1. **Big Data Science & Technology**
  - (a) Scalability of Machine Learning Algorithms
  - (b) Data streaming & Processing
  - (c) Dimensionality Reduction
  - (d) Analysis of Unstructured/Semi-structured data
  - (e) Management of Uncertainty and Ambiguity
  - (f) Visualization & Visual Analytics
  - (g) Security & Privacy issues
  - (h) Novel Theoretical Models

- (i) New Computational Models
- (j) Data & Information Quality and New Data Standards.

## 2. **Big Data Infrastructure**

- (a) Data Fusion & Integration
- (b) Architectures for Processing
- (c) Cloud/Grid/Stream Computing
- (d) High Performance/Parallel Computing Platforms
- (e) Autonomic Computing and Cyber-infrastructure
- (f) System Architectures, Design and Deployment
- (g) Energy-efficient Computing
- (h) Programming Models
- (i) Environments for Cluster
- (j) Cloud & Grid Computing to Support Big Data
- (k) Software Techniques & Architectures in Cloud/Grid/Stream Computing
- (l) Big Data Open Platforms
- (m) New Programming Models
- (n) Software Systems to Support Big Data Computing

## 3. **Big Data Search, Mining and Management**

- (a) Search & Mining of variety of data including scientific, engineering, social, sensor & multimedia
- (b) Algorithms & Systems for Big Data Search
- (c) Distributed & Peer-to-peer Search
- (d) Big Data Search Architectures, Scalability & Efficiency
- (e) Data Acquisition, Integration, Cleaning & Best Practices
- (f) Visualization Analytics for Big Data
- (g) Computational Modeling & Data Integration
- (h) Large-scale Systems & Social Media Systems
- (i) Cloud/Grid/Stream Data Mining-Big Velocity Data
- (j) Link & Graph Mining, Semantic-based Data Mining
- (k) Mobility and Big Data
- (l) Multimedia and Multi-structured Data-Big Variety Data

## 4. **Big Data Security & Privacy**

- (a) Intrusion Detection
- (b) Cyber security and Gigabit Networks
- (c) Anomaly Detection in Very Large Scale Systems
- (d) High Performance Cryptography
- (e) Visualizing Large Scale Security Data
- (f) Threat Detection using Big Data Analytics
- (g) Privacy Threats of Big Data

- (h) Privacy protection in Big Data Collection/Analytics
- (i) Challenges for Big Data Security & Privacy
- (j) User Studies for any of the above
- (k) Sociological Aspects of Big Data Privacy

5. **Big Data Applications**

- (a) Complex Big Data Applications in Science, Engineering, Medicine, Healthcare, Finance, Business, Law and Education
- (b) Indian Traditional Knowledge
- (c) Transportation
- (d) Retailing, social media and Telecommunication
- (e) Big Data Analytics in Small Business Enterprises (SMEs)
- (f) Big Data Analytics in Central and State Governments, Public Sector and Society in General
- (g) Real-life Case Studies of Value Creation through Big Data Analytics
- (h) Big Data as a Service
- (i) Big Data Industry deployments & Standards and Experiences of Big Data Govt Deployments/ Projects.
- (j) **Some of the Research topics on which proposals are also solicited, but not limited to, under Big Data-Applications are**
  - Big Data: River Network optimisation - A data driven analytics approach.
  - Understanding Urban/ Rural people perceptions on immunisation
  - Online Signals for Risk Factors of Non-Communicable Diseases (NCDs)
  - Characterizing human behavior during floods through the lens of mobile phone activity
  - Mining Indian Tweets to Understand Food Price Crises
  - Advocacy Monitoring through Social Data: Women and Children Health
  - Analyzing Online Content for Insight on Women and Employment in India
  - Analytics and Understanding social Conversations through Big Data
  - Unemployment analysis through Social Media
  - Monitoring Food Security Issues Through News Media and Analytics
  - India and State-wise, region wise Snapshots of mental Health/ Wellbeing - Mobile Survey
  - Daily Tracking of essential Commodity Prices in India through data mining and analytics
  - Twitter and Perceptions of Crisis-Related Stress
  - Population migration and analytics
  - Food and Nutrition Security Monitoring and Analysis
  - Monitoring Household Coping Strategies During Complex Crises
  - Economic crisis, tourism decline and its impact on local dependents
  - Impacts of the financial crisis on health and poverty in India
  - Impact of the financial crisis on primary schools, teachers and

parents

- A Visual Analytics Approach to Understanding Poverty Assessment through Disaster Impacts in India
- Monitoring the impact of the global financial crisis on crime in India
- Urban crime pattern analysis, unemployment, education, social hierarchy and economic linkages

**Who can Apply:** Academicians, Scientists, Technologists and other practicing researchers from recognised academic, research institutions and registered scientific societies etc may submit their proposals.

**Approval mechanism:** All proposals received shall first scrutinized and screened by BDID, short listed ones shall be referred to Peer review comments, those who scored above standard threshold limits will be called for a technical presentation before Project Advisory and Monitoring Committee (PAMC). Based on recommendations of PAMC, proposals shall be taken up for possible support. Private funded institutions participation shall be based on agreed upon cost sharing basis.

**How to apply:** It is a throughout the year programme and interested can submit their proposals any time of the year in a standard DST prescribed format. For more information and for formats, visit [www.dst.gov.in](http://www.dst.gov.in)

**Proposal submission:** Proposals completed in all aspects, A **soft copy** by email to [krmm at nic dot in](mailto:krmm@nic.dot.in) and corresponding **single Hard copy** by post to

(Dr K R Murali Mohan)  
Head, Big Data Initiatives Division  
Hall-C, Room No:1  
Department of Science & Technology  
Ministry of Science & Technology  
Technology Bhavan, S J Marg  
New Delhi-110 016