



# IIT Bhilai Innovation and Technology Foundation

IIT Bhilai, Transit Campus - Govt. Engineering College, Old Dhamatari Rd,  
Sejbahar, Chhattisgarh (492015)

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## IIT Bhilai Innovation and Technology Foundation Invite Proposals under the Technology Business Incubator Scheme.

### About IBITF

Department of Science and Technology (DST), Government of India (GoI) has launched National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS) which aims to create a strong foundation and a seamless ecosystem for CPS technologies by coordinating and integrating nationwide efforts.

The Mission is implemented through a network of 25 Technology Innovation Hubs (TIHs) following a technology life cycle approach, addressing all stages of Knowledge - Development - Translation - Commercialization in their assigned Technology Vertical.

The Mission has funded IIT Bhilai to host the TIH for Financial Technologies (FinTech). IIT Bhilai has set up IIT Bhilai Innovation and Technology Foundation (IBITF) under section 8 of the Companies Act 2013 to carry out activities of the TIH while acting as the nodal center for spearheading entrepreneurship, R&D, HRD, skill development, and collaboration-related activities in Financial Technologies.

### About Technology Business Incubator (TBI) Scheme

Innovation and entrepreneurship play a pivotal role in developing a vibrant ecosystem to support business ventures and are drivers of economic growth and sustainable development. One of the most resonant sectors for entrepreneurship is financial technology. With an estimated 24% CAGR of the Fintech market size by 2025, the growth of this sector is forecasted to increase even further over the coming years, implying enormous potential for entrepreneurs.

IIT Bhilai Innovation and Technology Foundation (IBITF) is initiating a new approach to advance innovation and entrepreneurship in the financial technologies sector in the country by establishing a Technology Business Incubator (TBI) at IIT Bhilai following a hub-spoke model.

In the "Hub-Spoke Model," **IIT Bhilai (Hub)** will act as the mentor and resource center while synergizing and leveraging the potential of effective coordination amongst stakeholders/partnering organizations (Spokes) at the field level to enhance local innovation ecosystems.



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The TBI at IIT Bhilai will host teams of faculty members, along with research scholars, developers, and scientists, both externally hired and from the student body, who will work towards developing technology-based solutions to solve looming problems from various sectors under the fintech domain. And in the next three years, it will emerge as the country's fintech solutions and innovations hub.

The partnering institutes (Spokes) will share their knowledge base, network, and resources with the TBI at IIT Bhilai in solving problems that will positively impact society and transform the fintech industry. The TBI at IIT Bhilai will undertake impactful projects and initiatives in collaboration with partner institutions and collaborators.

## Partnering Institutions (Spokes)

1. Academic Partners
  - a. Centrally Funded Technical Institutes (CFTI)
  - b. Other Technical Institutes
  - c. Research Institutes
  - d. Management Institutes
  - e. International Institutes
2. Government
  - a. Public Financial Institutions and Regulators
  - b. Government organizations mandated to improve financial inclusion
3. Startups Incubated with Academic Institutions of Repute
4. Startup/Innovation Hubs
  - a. Government Funded Business/Innovation/Incubation/Acceleration Hub
  - b. Business/Innovation/Incubation/Acceleration Hub affiliated to academic institutions of repute



## Thematic Areas

### Internet of Things (IoT)

- Security of IoT Framework for Fintech Solutions
  - Standardization of Cyber Security for IoT Devices
  - Access Control
  - Lightweight Cryptography
  - Secured Data Collection
- IoT-based Fintech Products
  - Biometric Authentication Systems
  - Smart ATMs
  - Wearable Devices
- Testing and Validation of IoT framework
  - Hardware-Software Embedded Testing
  - Compatibility testing
  - Data Integrity Testing
  - Interface Testing
  - Communication Protocol Testing

### Artificial Intelligence

- Improving User Experience Through Process Automation
  - Portfolio Management
  - Recommender System
- Efficient AI Models for FinTech Applications
  - Feature Selection and Ranking
  - Prediction Models
  - Handling Dynamic and Unstructured Data
- Security
  - Anomaly Detection Systems
  - Efficient Classifiers

### Blockchain Technology

- Design and Analysis of Structural components of Blockchain for FinTech
  - Consensus Algorithms
  - Smart Contracts
  - Hybrid Platforms
  - Searchable Encryption
  - Integration with Hardware
- Applications of Blockchain for Fintech Products
  - Secure Digital Identity Management
  - Risk analysis and Assessment
  - Micro Loans
  - Energy Trading
  - Intelligent Agriculture

### E-Payments System

- Popularizing e-Payments
  - Rural Applications
  - Urban Applications
  - Small Retailers
- Utility Services and e-Payments
  - Utility Service Payments
  - Water, Electricity, Waste Management,
  - Sewage Disposal
  - Public Transport
- User-Friendly e-Payments
  - Minimal Human Intervention
  - Unified Payments System
  - Low-Cost Platforms
  - Enhanced Security



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## Approved Problem Statements Under Various Sectors

Industry/ Sector	S. No	Problem Statement
<b>Healthcare</b>	1.	Design and development of an e-marketplace for low-cost medical equipment.
	2.	Actuarial analysis of post covid impact on patient health.
<b>Agriculture</b>	1.	Blockchain-based analysis, monitoring, and management of seed lifecycle.
	2.	Geo-tagging-based lending/renting of farm equipment.
	3.	Blockchain-based insurance claim settlement in agriculture.
<b>Energy</b>	1.	Design and development of a Peer-to-peer e-marketplace for solar photovoltaic applications.
<b>Energy and Transport</b>	2.	Fleet management, insurance claim settlement, and battery optimization for electric vehicles.
<b>Education</b>	1.	Smart card (access+pre-paid/debit) for in-campus applications in educational institutions
<b>Environment</b>	1.	Year-on-year cost-benefit analysis for smart/green buildings
	2.	Blockchain-based management of mid-day meals
<b>Payments</b>	1.	Design and development of a suitable IT-based solution for the timely wage/pension payment to rural beneficiaries under various Government schemes.
	2.	Detection of fraudulent transactions among transactions between persons and merchants (P2M) by machine learning models that are robust to inconsistencies and imbalance. The Metric for evaluation is a high recall value with minimum possible false positives.
	3.	Enhancements in the QR-based payments to make these more secure while retaining its core strengths of being easy to generate, share, deploy, and use while keeping the cost low.
	4.	Develop a solution that provides a payment confirmation and reconciliation mechanism for all types of digital payments.
<b>Banking</b>	1.	ATM for visually impaired and blind
<b>Skilling</b>	1.	Certification in Fintech and diploma program

Through this exercise, IBITF strives to create a bridge between academic institutions and incubators to translate and solve industry problems employing fintech-based solutions. These



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problem statements will be derived from various industries, ensuring the proposed solutions' commercial viability, market adoption, and socio-economic impact. As mandated by the DST, this exercise will confirm the adoption of derived solutions by the industry and act as a revenue generation mechanism for the TBI to function independently.

More problem statements are invited before March 15 to be considered for Cohort#1 under the TBI at IIT Bhilai. Use the link below to submit relevant problem statements that require fintech-based solutions.

[Submit Your Problem Statements Here](#)

## Outcomes

IBITF envisions the following outcomes from the TBI scheme:

- Build innovation communities of entrepreneurs on campuses
- Job creation, business, and revenue generation aligning with national priorities.
- Promotion of new technology/knowledge/innovation-based startups.
- Catalyze translational research and fast-track commercialization of technologies developed by academia, R&D institutions, or individuals.
- Support deep tech start-ups through mentoring, legal, financial, technical, and intellectual property-related services
- Generate value for partnering institutions and collaborators by imparting training and skill development, incubation support, commercialization of products and services, attracting investment and funding for startups, creating job opportunities, and generating revenue



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## **IBITF Fintech Stakeholder Conclave**

On behalf of IIT Bhilai and IBITF, a fintech Stakeholder Conclave is being hosted on **March 15, 2023, in Raipur, CG**. Through this conclave, we are attempting to bring diverse stakeholders, including industry, corporates, government agencies, academia, and startups, on one platform to exchange ideas and opinions while consolidating insights for **identifying problem areas in various sectors seeking fintech solutions**.

We seek qualified academic, incubation/acceleration hubs, and government institutions that could devise relevant problem statements and proposals under the fintech domain—identifying problem statements and proposals under Cohort#1 of the TBI at IIT Bhilai.

The last Date for **Submission of proposals under the TBI Scheme is March 20, 2023**.

The exercise will be conducted in three stages:

### **Stage 1. (March 15) IBITF Annual Fintech Stakeholders' Conclave**

Inviting participation from reputed academic and government institutions to identify problem statements in the fintech domain.

### **Stage 2. (March 20) Proposal Submission**

Convert these problem statements into project proposals that IBITF could evaluate through an expert committee and subsequently fund to derive the proposed solutions.

### **Stage 3. (March 20 - 31) Evaluation and Disbursement of Funding**

Allocate/provide funding to such institutions to execute the selected projects with the handholding support of IIT Bhilai (technical support). IBITF foresees the overall allocation for such projects in the range of 2.5 - 3.5 Cr, which may vary depending on the quality of the proposal and the impact of the proposed solutions.



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## Format for Detailed Proposal under Technology Business Incubator Scheme

1. Title of the Proposal
2. Thematic Area Under Which Your Project Lies?  
(IoT/AI/ML/Blockchain/Payments System/(If Others, please specify))
3. Proposed Duration of the Project:\_\_\_\_\_Months
4. Principal Investigator (PI) and Co-Principal Investigators (Co-PIs)

<b>Name</b>	
<b>Designation</b>	
<b>Department</b>	
<b>Institution</b>	
<b>Postal Address</b>	
<b>E-mail</b>	

### Co-Principal Investigator (PI)

<b>Name</b>	
<b>Designation</b>	
<b>Department</b>	



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<b>Institution</b>	
<b>Postal Address</b>	
<b>E-mail</b>	

- 5. Aims and Objectives/Problems to be addressed [Technical fallouts in the existing state-of-the-art methods proposed to be addressed] (1000 words) / Target beneficiaries**
- 6. The novelty of the Proposal [Mention how the proposal is novel with respect to the current state-of-the-art FinTech?] (250 words)**
- 7. Revenue Model [This section should elaborate on the business development strategy, product viability, commercialization, etc.] (500 words)**
- 8. Gantt Chart of activities giving clear milestones for every quarter and Progress in TRL(Technology Readiness Level) of the proposal**
- 9. Patents, and papers. Prototypes developed etc., [if any] (1000 words)**
- 10. Please mention the deliverables under the following heads with relevant details:**
  - Plans of translating the project into Start-ups and Spin-off companies
  - Target number of Publications, Technologies, products, IPRs, etc.
  - Target number of job creations

## 11. Budget

Head	1st Year	2nd Year	3rd Year	Amount contributed by industry	Amount payable by IBITF
Equipment					
Travel					





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<b>Manpower</b>					
<b>Contingencies</b>					
<b>Overhead@ upto 10%</b>					
<b>Grand Total</b>					

## 12. The expertise of PI

a) Bio-Data of the PI and Co-PI (as per Annexure 4)

b) Infrastructural Facilities available with the investigator

c) Equipment available with the Institute/ Group/ Department/ for the project:(Related to this project)

## Notes:

- Applicants [Principal Investigator (PI) and Co-Principal Investigator(s) (Co-PI(s))] should be Indian citizens.
- Industry participation is desirable. The funding by IBITF will be commensurate with the industry contribution. Attach as an annexure, if applicable.
- The project should be submitted in the format provided along with Annexures 1,2, and 3 through the link on or before March 20, 2023.
- A soft copy shall be emailed to [tih@iitbhilai.ac.in](mailto:tih@iitbhilai.ac.in) and mention "Proposal Submission Under the Technology Business Incubator Scheme\_Institute Name" in the subject line.



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## Annexure-1

### CERTIFICATE FROM THE INVESTIGATOR

(On official letterhead)

PROPOSAL Title:

Name(s) of the PI's and Co-PI's:

1. I/We agree to abide by the terms and conditions of the grant received from IBITF.
2. I/We did not submit this or a similar project proposal elsewhere for financial support.
3. I/We agree to open a start-up company to execute the project.
4. I/We undertake to submit progress reports, Statement of Expenditure (SE)/ accounts, Utilization Certificates (UC), etc. covering up to 31st March every year till the completion of the project as prescribed by DST.

Date:

Signature of PI/PIs

Place:

Date:

Signature of Co-PIs

Place



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## Annexure-2

### ENDORSEMENT FROM THE HEAD OF THE INSTITUTION

(On official letterhead)

PROPOSAL TITLE:

Name(s) of the PI's and Co-PI's:

It is certified that the Institute welcomes the participation of the above as the Principal Investigator(s) and/or Co-PI(s) for the project.

1. Certified that the equipment, other basic facilities, and other administrative and accounting facilities, as per the terms and conditions of the grant, will be extended to the investigator throughout the project. In case of PI/Co-PI leaving the institution or proceeding on a long leave during the project period, prior permission will be sought from IBITF before relieving/sanctioning.
2. Certified that the investigators can open a start-up company (unconditionally) to execute the project, per the institute's policy.
3. Institute assumes the project's financial and other management responsibilities, including timely submission of Progress Reports, UCs, and SEs, and facilitates external audits if required.

Name of the Head of Institution

Signature with stamp

Date

Place:



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## Annexure-3

### PROFORMA FOR BIO-DATA

1. Name:
2. Designation:
3. Department:
4. Institution:
5. Contact Number
6. Email:
7. Date of Birth:
8. Gender:
9. Academic Qualification: (Undergraduate Onwards)

S.No.	Degree	Year	Subject	University/Institution	% of Marks

### 10. Work Experience (in chronological order)

S.No.	Position held	Institution	From	To	Pay Scale
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## 11. Professional Recognition/ Award/ Prize/ Certificate/ Fellowship received by the member

S.No.	Name of Award	Awarding Agency	Year

## 12. Publications (List of papers published in SCI Journals, in year-wise descending order)

S.No.	Authors	Title	Journal	Volume	Page	Year



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## 13. Detail of Patents

S.No.	Patent Title	Name of Applicant(s)	Patent No.	Award Date	Agency/ Country	Status

## 14. Books/Reports/Chapters/General articles etc.

S.No.	Title	Publisher	Year of Publication

IBITF is scouting for young professionals and students with entrepreneurial skills to perform cutting-edge research and development in various technology domains while striving to create a sustainable ecosystem with national and international collaboration.



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## 15. List of Projects implemented

### 15.1 Details of Projects in progress

S.No.	Title	Cost in Lakh	Duration	Role(PI/Co-PI)	Agency

### 15.2 Details of Projects completed

S.No.	Title	Cost in Lakh	Duration	Role(PI/Co-PI)	Agency



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## 16. Any other relevant information (maximum 500 words)

### Note

**Mode and extent of Funding:** The funds are from the Department of Science and Technology, Government of India, under the National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS) for the Technology Innovation Hub (FINTECH) at IIT Bhilai. Thus, the commitment of the funds from IBITF is subject to the grants received from the funding organization, i.e., DST, Govt. of India. The actual disbursement of funds by IBITF would be based on reimbursement of actual expenditure against the bills and the advance (if availed of any, needs to be settled within one month of the release).

### Terms and Conditions

The financial support is for the specific project as approved by IIT Bhilai Innovation And Technology Foundation (IBITF) and shall be subject to the conditions listed below. The PI/Start-up shall give an undertaking that they agree to be governed by these conditions:

1. The amount shall be i) spent for the project within the specified time; and ii) Any portion of the grant, which is not ultimately required for expenditure for the approved purposes, shall be duly surrendered to IBITF.
2. The PI/Start-up shall maintain an audited record as a register in the prescribed proforma for permanent, semi-permanent assets acquired solely or mainly out of an IBITF grant;
3. The assets referred to in (2) above will be the property of IBITF and should not, without prior sanction of IBITF, be disposed of or encumbered or utilized for the proposes other than those for which the grant has been sanctioned;
4. Should PI/Start-up cease to exist at any time, such assets, etc., shall revert to IBITF;
5. The PI/Start-up shall render progress-cum-achievement reports at intervals of not Exceeding three months on the progress made on all aspects of the project, including expenditure incurred on various approved items during the period;





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6. The utilization of grants for the intended purposes will be looked into by the Auditor of IBITF according to the directives issued by the DST Government of India;
7. IBITF or its nominee(s) will have the right of access to the books and accounts of The PI/Start-up for which a reasonable prior notice would be given;
8. PI/Start-up should not retain the sale proceeds of prototypes, etc., fabricated due to the project's development arising directly from funds granted by the IBITF. The PI/Start-up should return to IBITF funds thus generated;
9. The Intellectual property and its associated rights shall be owned jointly by the PI/Start-up and IBITF. Both parties may share any royalties or other benefits generated by licensing such joint IP under mutually agreed terms on a case-to-case basis. The PI/Start-up is expected to hive off a start-up to deploy the system. In such a case, the IP could be transferred to the start-up;
10. IBITF shall appoint a Project Review and Steering Group (PRSG) comprising representatives from IBITF and other experts; PRSG will periodically monitor the project in all respects, including technical and financial;
11. In case of any dispute on any matter related to the project during its implementation, the decision of the IBITF, shall be final and binding on the proposal originating industry/industry consortium and PI/Start-up;
12. A representative of IBITF could be a member of the Board of Directors of the Start-up.