

No. O-15012/21/22-Research
Government of India
NITI Aayog
(Governance & Research Vertical)

Sansad Marg, New Delhi-110001

Dated: December 26, 2022

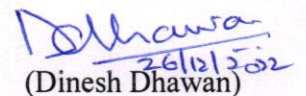
PUBLIC NOTICE

Sub: Eol on Research Study on " Incubator Ecosystem in Indian Higher Education Institutions: Learnings in Innovation and Entrepreneurship for Impact and Scale "-reg.

NITI Aayog invites expressions of Interest (Eol) for conducting research/study on the topic as mentioned in Annexure-I from institutions/organizations of repute (including university/deemed university). A brief scope/ToR of the study proposed is also enclosed at Annexure-I. The detailed Research Scheme of NITI Aayog, 2021 (RSNA-2021) [as amended] guidelines may be seen in the NITI Aayog website at <http://www.niti.gov.in/guidelines>.

2. Here, the aim of the study is to provide research-based insights to NITI Aayog that would be used in policy recommendations for architecting the next phase of growth and expansion of Innovation and Entrepreneurship across 'India' and 'Bharat'. The Research/Study Proposals for which Eol is being invited, will be funded under the Research Scheme of NITI Aayog 2021(RSNA-2021) and its amendments, if any. All the institutions/organisations are requested to go through the Guidelines of the Research Scheme of NITI Aayog, 2021 (RSNA-2021) [as amended] before responding to this public notice, especially to satisfy themselves that they fulfill all the eligibility criteria for availing of grant under the said scheme and also that they can conduct the research study project as per the guidelines.

3. The hard copy of Eol as per Annexure-II must be submitted by hand or by Registered post to Senior Research Officer (Governance & Research), Room # 435, NITI Aayog, Sansad Marg, New Delhi-110001. The Eol must be sent in envelopes superscribed with the words "Eol on (name of the topic as mentioned in Annexure- I)" and the same must reach NITI Aayog within 21 days of publishing of the notice on NITI Aayog's website and CPP portal. Eol through E-mail may be sent at address dinesh.dhawan@nic.in (however, it should accompany the hard copy as well). For any query in this regard, the Senior Research Officer (Research) may please be contacted over telephone -011-23096725/mail-dinesh.dhawan@nic.in.


(Dinesh Dhawan)

Senior Research Officer (Research)

Copy to:

1. Sr. Adviser (G&R), NITI Aayog
2. Sr. Adviser, Education, NITI Aayog
3. Mission Director, AIM, NITI Aayog
4. Scientist E, NIC, NITI Aayog

TERMS OF REFERENCE

For

Research Study On:

**Incubator Ecosystem in
Indian Higher Education Institutions:
Learnings in Innovation and Entrepreneurship
for Impact and Scale**

Terms of Reference

1. Background of the Study

A. National Education Policy 2020: Role of Innovation and Entrepreneurship in Indian Higher Education

The National Education Policy (NEP) 2020 envisages the role of higher education as providing the basis for knowledge creation and innovation for contributing to a growing national economy, more than the creation of opportunities for individual employment. (9.1.3) It suggests that Higher Education Institutions (HEIs) should focus on research and innovation by setting up start-up incubation centres. (11.12) These incubation centres could be set up in HEIs either through government support or in partnership with industries. (16.7) Thus, NEP 2020 provides the policy direction to bring the Start-up Movement into HEIs in a formal and structured way to encourage the spirit of innovation and entrepreneurship among young graduates who can translate their ideas and research into ventures that would provide solutions to India's diverse socioeconomic challenges. This would also help improve India further improve its rankings on several global indices including the Global Innovation Index, where India currently ranks among the top 50 countries.

B. Atal Innovation Mission: Overview to the Incubator Ecosystem

The Atal Innovation Mission (AIM) supports the establishment of new incubation centres called Atal Incubation Centres (AICs) that nurture innovative start-up businesses in their pursuit to become scalable and sustainable enterprises. The AICs aspire to create world class incubation facilities across various parts of India with suitable physical infrastructure in terms of capital equipment and operating facilities, coupled with the availability of sectoral experts for mentoring the start-ups, business planning support, access to seed capital, industry partners, trainings and other relevant components required for encouraging innovative start-ups. Currently, HEIs, R&D institutes, corporate sector, alternative investment funds registered with SEBI, business accelerators, groups of individuals, and individuals are eligible to apply for the AIC programme. AIM provides a grant-in-aid of up to ₹10 crores for a maximum period of 5 years for AICs and 3 years to the EICs (Established Incubation Centres) for scale-up to cover capital and operational expenditures required to establish the AIC. In the future, more AICs would be established in sector specific areas such as Advanced Manufacturing, Agriculture, Cyber-Security, Defence, Education, Energy and Cleantech, Health, Transport and Mobility, Water and Sanitation, etc.

This Study is a collaborative endeavour between the Education Vertical of NITI Aayog and the Atal Innovation Mission.

2. Objectives of the Study

- **Vision:** The core vision of this three-part research cum diagnostic study is to cultivate a culture of Innovation and Entrepreneurship in Indian HEIs, and to create a roadmap for making India the global capital for entrepreneurship by 2047.
- **Intended Audience:** The study would provide research-based insights to NITI Aayog and AIM that would be used in policy recommendations for architecting the next

phase of growth and expansion of Innovation and Entrepreneurship across 'India' and 'Bharat'.

- **Focus Areas:** The three sub-areas of focus for this comprehensive study are:

A. Study 1: Incubators in Indian Higher Education Institutions

- **Research Questions:** In an elaborate format, this research study would address the following key research questions:
 - i. What are the dominant models that have emerged from the Indian start-up ecosystem over the last decade?
 - ii. What is the logic and assumption(s) behind each of the models?
 - iii. How do these models fare on parameters such as performance, sustainability/viability, and scalability of the start-ups?
- **Target Population:** The abovementioned research questions would be addressed by studying the target ecosystems that would include the following 100 Incubators:
 - i. All AIM-supported incubators in HEIs (about 45)
 - ii. Select DST and DBT incubators (min. 25)
 - iii. Select private HEI incubators (min.10)
 - iv. AIM-supported incubators in non-HEIs (min. 10)
 - v. Non-AIM-supported incubators in non-HEIs (min. 10)All States and Union Territories of India that have an Incubator must be covered through one or more of the abovementioned target ecosystems.
- **Incubator-level Study:** The abovementioned research questions would be addressed by gaining incubator-level detailed understanding on:
 - i. Difference in operations and outputs of incubators led by faculty vs. those led by industry practitioners
 - ii. Challenges with respect to manpower (staff, mentors, and industry experts), and infrastructure
 - iii. Challenges with respect to HEI admin and leadership support for Incubators and issues of Interference
 - iv. Opportunities for collaborations with local industry players for pilots/investments/mentoring
 - v. Opportunities for collaboration with State Innovation Councils
 - vi. Learnings from women-led start-ups and women-centric programmes led by incubators in HEIs
 - vii. Approaches for supporting and scaling high performing start-ups
 - viii. Institutional ability to host/support non-service sector start-ups like deep-tech, biotech, clean-tech, agri-tech, etc.
 - ix. Institutional ability to host/support start-ups with high social impact
 - x. Institutional ability to host/support start-ups with SDG focus
 - xi. Institutional competence for advanced facilities in legal, tech licensing, IPR, and other advisory support
 - xii. Availability of faculty expertise in mentorship, advisory, consulting, etc. in Incubator-hosted start-ups

- xiii. Availability of HEI alumni expertise for mentorship, advisory, consulting, etc. in Incubator-hosted start-ups
- xiv. Learnings from extension of HEI research projects/products/patents as start-up ventures
- xv. Availability of Angels and VC Funding
- xvi. Ability of the Incubator to activate local HNIs
- xvii. Compare performance/facilities of Incubators based in metros vs. those in smaller towns and Tier 2/3 cities
- xviii. Strength of government support – financial and institutional
- xix. Exploring the need for greater government funding to new Incubators that is inflation-adjusted.
- xx. Opportunity to provide funding for establishing Accelerators in HEIs along with incubators that have proved their efficiency and effectiveness.
- xxi. Studying ways in which a financial ecosystem can be created around successful Incubator ecosystems that have shown substantial promise over the last 7-10 years.
- xxii. Any other major observations/learnings
- **Final Output:** Based on the above study of the 100-odd Incubators, formulate 5-6 unique inductive models/frameworks that represent the HEI and non-HEI based Incubator Ecosystems in India.

B. Study 2: International Incubator Ecosystems

- **Research Questions:** In an elaborate format, this research study would address the following key research questions:
 - i. What are the major phases through which the incubator ecosystem in the 5 countries have gone through?
 - ii. What learnings do they provide India in its growth journey (including challenges, pitfalls, and blunders along with systemic interventions to address them over a multi-phase growth journey)?
- **Target Population:** To address the abovementioned research questions, the study would involve exploring parallels in other developed countries where HEI and non-HEI-based Incubators have succeeded, and the systemic facilitators that have helped in this process over multiple phases of growth during the last three decades. This study would include the following 5 nations:
 - a. USA
 - b. Germany
 - c. Israel
 - d. Singapore
 - e. China
- **Country-level Study:** Each of the country-specific studies would gain a detailed understanding by focussing on the following:
 - i. Detailed Insights on country-specific characteristics for Incubation and Acceleration

- ii. Understanding how Incubation and Acceleration evolve to meet the ever-changing needs of the start-up ecosystem in that country
 - iii. Assimilate best practices of running incubators/accelerators in the country's start-up hubs and across govt. and private sectors focusing on areas such as programme offering, and goals (duration, programme content, type of intervention, stage of start-ups, selection and success criteria, business model, etc.)
 - iv. Best performing incubators/clusters of incubators, and their critical success factors.
 - v. Key types of start-ups supported through the incubation ecosystem (i.e., sectors, and faculty-led/student-led)
 - vi. Anecdotal overview of most successful start-ups to have emerged out of certain Incubators
 - vii. Role of mentors, faculty, alumni, industry veterans in mentoring and handholding start-ups
 - viii. Role of government financial support in that country, whether through grants/equity stakes/loans for incubators and start-ups.
 - ix. Specific sectors that the government in that country focuses on viz. Deep-tech, Agri-tech, Fin-tech, Biotech, or others.
 - x. Enabling regulations by the state and federal governments in that country to scale and support the start-up ecosystem
 - xi. Approach of HEI operational and institutional leadership towards incubators
 - xii. Policies supporting interactions between start-ups and established enterprises, government and defence establishment
 - xiii. Dynamics of the funding ecosystem in that country
- **Final Output:**Based on the above study, formulate 2-3 models / frameworks that represent the HEI and non-HEI based incubators in that country. Also identify the critical success factors of leading HEI-based and non-HEI based international incubator ecosystems over its vital phases of growth that would help identify benchmarks for scaling the Indian Incubator Ecosystem in its next phases of growth.

C. Study 3: New Incubator Ecosystems in the Indian Hinterland

- **Research Questions:** In an elaborate format, this research study would address the following key research questions:
 - i. What are the institutional and ecosystemic critical success factors for establishing contemporary incubation ecosystems in the Indian hinterland?
 - ii. What are the alternative scenarios for creating better socio-economic opportunities through innovation and entrepreneurship in the Indian hinterland?
- **Target Population:** The abovementioned research questions would be addressed by studying the potential of Universities across the country to house Incubation Centres, especially in the State Universities.
- **University-level Study:**The abovementioned research questions would be addressed by gaining University-level detailed understanding of:

- Ways in which incubators in the University can be established to help commercialise native skills, arts and crafts, and local products at scale; thereby increasing livelihood and entrepreneurship opportunities and reducing urban migration.
- Opportunities for students and faculty within the University to channelise their research into business ideas and products.
- Ways in which the Incubation Centre in a specific University in a cluster of districts could act as the nodal centre for internship/advisory/incubation for start-ups
- Approaches through which the Incubation Centre in the University can help the entire value chain of the product(s) under the One District One Product (ODOP) programme of the Govt. of India.
- Explore the ability of the University to house an Incubation Centre based on the following criteria:
 - i. Institutional track record of supporting innovation/entrepreneurship among faculty/students
 - ii. Institutional track record of supporting the local ecosystem in entrepreneurial activities through mentorship, training programmes, seminars, etc.
 - iii. Institutional ability to host/support non-service sector start-ups like deep-tech, biotech, clean-tech, agri-tech, etc.
 - iv. Institutional ability to host/support start-ups with high social impact
 - v. Institutional ability to host/support start-ups with SDG focus
 - vi. Institutional competence for advanced facilities in legal, tech licensing, IPR and other advisory support
 - vii. Challenges with respect to manpower (staff, mentors, and industry experts), and infrastructure
 - viii. Availability of MSMEs and local cooperatives to help the University for running the Incubator
 - ix. Existence of local industry players for pilots/investments/mentoring
 - x. Availability of faculty expertise in mentorship, advisory, consulting, etc. in Incubator-hosted start-ups
 - xi. Availability of University alumni expertise for mentorship, advisory, consulting, etc. in Incubator-hosted start-ups
 - xii. Track record of HEI research projects/products/patents as start-ups ventures
 - xiii. Track record of technology transfers by the HEI to local MSMEs in the region
 - xiv. Availability of Angels and VC Funding
- **Final Output:** Based on the abovementioned study, assess the ability of individual/cluster of universities in specific states/UTs/regions to house Incubators. Also assess the specific areas relevant to the Indian hinterland that these Incubators could focus on to positive catalyse and impact the local socioeconomic ecosystem through livelihoods.

3. Methodology

A. Study 1: Incubators in Indian Higher Education Institutions (Diagnostic Study)

This study will be based on Inductive Research. The knowledge partner would undertake a diagnostic study of the 100-odd Incubators as elaborated in Section 2.A. For this, the knowledge partner would conduct primary and secondary research that would include:

- Identifying clearly measurable indicators from the past studies done by international academic institutions like Harvard, MIT, Stanford, Oxford, Cambridge, among others.
- Preparing a template on characteristics and unique features/elements of an ideal Incubator based on experiences of other countries and comparing it with the findings of existing Indian / International Incubator Ecosystems.
- Survey/interview(s) with the leadership of HEI-based Incubators through personal interviews and in-person visits to the campuses of HEI-based incubators
- Survey/interview(s) to understand the first-hand experience of entrepreneurs in the HEI-based Incubators
- Survey/interview(s) to understand the first-hand experience of industry experts who collaborated with/mentored HEI-based Incubators

B. Study 2: International Incubator Ecosystems (Longitudinal Study)

This study will be based on Descriptive Research. The knowledge partner would undertake a longitudinal study that would trace the milestones in the multi-decade journey of the ecosystems in the 5 identified countries– Germany, USA, Israel, Singapore, and China. For this, the knowledge partner would conduct primary and secondary research that would include:

- Assessing available secondary data of incubator ecosystems in the selected countries.
- Phase-wise study of the Innovation and Startup Culture in the selected countries
- Distribution of excellence in selection of HEIs for each of the 5 countries: 15 universities can be selected for site visits and/or survey from each of the 5 countries based on their ranking in global Higher Education rankings such THE or QS such that 5 each are from top, middle and lower levels of the rankings. This is to ensure that insights can be gained from across levels of performance of global HEIs.
- Non-Ivy League Universities / State Universities to be selected from each of the 5 countries to gain learnings and insights for State Universities in India
- Select interviews with top leadership at the incubator, select successful start-ups incubated therein, site visits and archival research, as necessary.
- Survey/interview(s) of industry experts who collaborated with/mentored HEI-based Incubators

C. Study 3: New Incubator Ecosystems in the Indian Hinterland (Exploratory Study)

This study will be based on Exploratory Research. The knowledge partner would undertake an exploratory cum diagnostic study of the Universities as elaborated in Section 2.C. For this, the knowledge partner would conduct:

- In-person visits to the campuses of State Universities (5-6 state universities in each state based on their rankings such that 2 each are from top tier, middle tier and bottom tier in the NIRF or any other reputed ranking system) to study physical and research infrastructure, faculty quality, existence and/or opportunities for academia-industry

- collaboration, opportunities for people and logistical connectivity to the nearest cities, etc. This should include at least 1 HEI from an Aspirational District within each state.
- Select interviews with top leadership at the University, faculty, alumni, local trade organisations, local start-ups (if any), as necessary.
 - For studying alternative scenarios, design thinking and scenario analysis could be used.

4. Scope of Services

A. Primary Research (for all 3 studies): The data collection and evaluation processes will include (but not limited to):

- Establishment of a managerial structure for field operations.
- Putting in place appropriate IT hardware and application software for data collection and management.
- Finalisation of the questionnaires/discussions guides for focus group discussions and interview guides for in-depth interviews
- Preparation of the data collection and analysis plan
- Collecting and compiling the quality data from selected HEIs
- High quality data management and adherence to quality assurance mechanisms as per agreed protocols, plans and schedules
- Data verification
- Collation and data cleaning
- Running data analysis and submitting cross-tabulations/summarizations, and visualizations
- Ensuring ethics of data collection and protection of privacy
- Preparation of draft report and conducting stakeholder consultations
- Submission of final report along with key findings and detailed policy recommendations
- Incorporating concurrent feedback into the workflow

B. Secondary Research

I. For Study on 'Incubators in Indian Higher Education Institutions' and on 'New Incubator Ecosystems in the Indian Hinterland': The data collection and evaluation processes will include (but not limited to):

- Available financial data on the incubation ecosystem funded through various sources
- Available evaluation reports for outputs and outcomes assessment of government/privately supported incubators
- Annual progress reports and implementation documents to assess the institutional arrangements
- Evaluations done by non-government agencies
- Media coverage

- Research papers and case studies
- Any other relevant documents

II. **For Study on International Incubator Ecosystems:** The data collection and evaluation processes will include (but not limited to):

- Available financial data on the Incubation Ecosystem in that country funded through various sources
- Available evaluation reports for outputs and outcomes assessment of government/privately supported international incubators
- Annual progress reports and implementation documents to assess the institutional arrangements
- Available evaluation reports done at the country level for the 5 countries identified for the study
- Evaluations done by non-government agencies
- Media coverage
- Research papers and case studies
- Any other relevant documents

5. Deliverables and Timelines

I. Key Deliverables would include:

- All the reports are required to be submitted in hard copy (10 Nos.) and in soft copy.
- A synopsis of the Final Evaluation Report is also required to be submitted separately.
- In addition to the reports, for further analysis in future, verifiable raw data in soft copy should also be shared with NITI Aayog. This will include detailed transcriptions of key informant interviews as well as raw data in MS Excel/CSV format.
- Geo-tagged photos, and raw files of high-quality audio and video interviews will be shared with NITI Aayog during and at the end of the study.

II. Timelines for the above deliverables are given in the table below:

<i>S. No</i>	<i>Deliverable</i>	<i>Activity</i>	<i>Deadline</i>
1	Signing of Contract		T
2	Inception Report	Inception Report and presentation with final scope, methodology and approach. This should also include findings from the secondary research/ meta-analysis and therefore the areas which will be further explored during field visits.	T+15 days

3	Finalisation of Inception Report based on comments by NITI Aayog		T+30 days
4	Fortnightly Progress Review with Monitoring and Advisory Committee of NITI Aayog	Presentations/ sub-reports on primary data collection, data quality check, secondary research, geo-tagged images of site visits, audio/video interviews of subjects, etc., to be shared with NITI Aayog on a fortnightly basis.	T+45 to T+90 days
5	Mid-term Report	Mid-term Report and presentation with initial findings of the study.	T+120 days
6	Sign-off on the Mid-term Report based on comments by NITI Aayog		T+150 days
7	Completion of Site Visit at HEIs		T+150 days
8	Draft Final Report	Draft Report and presentation for stakeholder consultations.	T+210 days
9	Comments on Draft Final Report by NITI Aayog		T+240 days
10	Sign-off on the Final Report	<ul style="list-style-type: none"> ▪ Final Report and presentation after incorporation of inputs from all the concerned stakeholders. ▪ A copy of the entire repository of primary data collection, secondary research, geo-tagged images of site visits, audio/video interviews of subjects, etc. to be submitted to NITI Aayog. 	T+270 days

6. Payment Schedule

Payment Schedule shall be as per Research Scheme of NITI Aayog 2021, as indicated below:

<i>Instalment</i>	<i>% of release</i>
1st	40
2nd	30
3rd	30

7. Indicative Structure of the Final Report

The broad structure of the Final Report will be as follows:

- 1) Preface
- 2) Executive Summary
- 3) Innovation and Incubation Ecosystem in India: Overview
 - 3.1. Background
 - 3.2. Key Trends / Drivers in the Ecosystem
 - 3.3. Literature Review and their key findings
 - 3.4. Future Potential for contributing to Socioeconomic Growth and Development
- 4) International Innovation and Incubation Ecosystem: Overview
 - 4.1. Background
 - 4.2. Key Trends / Drivers in the Ecosystem
 - 4.3. Literature Review and their key findings
 - 4.4. Future Potential for contributing to Socioeconomic Growth and Development
- 5) Study Objectives, Approach and Methodology for each of the 3 studies (to be presented separately for each study)
 - 5.1 Overall Research Approach
 - 5.2 Primary Research Methodology
 - 5.3 Secondary Research Methodology
 - 5.4 Data Collection, Analysis, and Visualisation
 - 5.5 Case Studies
 - 5.6 Models/Framework
 - 5.7 Key Insights and Takeaways
- 6) Summary of Key Findings
- 7) Observations & Policy Recommendations for Way Forward
- 8) References and Appendices
 - 8.1. Appendix 1 - Details of Key Interviews
 - 8.2. Appendix 2 - Case Studies
 - 8.3 Appendix 3 - Details and photos on site visits
- 9) Bibliography

The final structure of the report can evolve during the regular consultative process to add several other dimensions, as may be required.

8. Support from NITI Aayog

The knowledge partner would be provided support from NITI Aayog in the following ways:

- a) Facilitating connections with all AIM supported incubators, their start-ups, mentors, and other stakeholders involved therein.
- b) Facilitating required approvals with DST and DBT for connections with DST and DBT supported incubators, their start-ups, mentors, and other stakeholders involved therein.
- c) Facilitating connections with Universities in the Indian Hinterland
- d) Consultative support through fortnightly meetings of the Monitoring and Advisory Committee with Project Leads and all 3 Team Leads.

9. Miscellaneous

The knowledge partner may be permitted to publish select and non-sensitive study findings as permitted by NITI Aayog only after two years from the date of submission of the final report.

Format of Expression of Interest (EoI)

1. Scope of work and organisation

- (i) The broad scope of work or service (briefly in about 100 words)
- (ii) Type of Inputs to be provided by NITI Aayog on the subject
- (iii) Eligibility of the consultant(s) for the study

Type of organisation	Registration no. as per NGO portal of NITI Aayog	Samavesh Partner/Chair professor unit/other	Single or Joint or collaboration (Name of all organisations)	Whether blacklisted by Govt of India/ State Govt/any Other department*
*If so, details thereof				

2. Required Documents:

- (i) Copy of Registration Certificate of the Institution/Organisation **OR** Articles of Association {Copy of the Constitution/MOA (Memorandum of Association) of the Institute/Any letter issued by UGC if University}
- (ii) Registration number (Copy) in NGO-Portal "Darpan" of NITI Aayog, if applicable.
- (iii) Photocopy of PAN card of the organisation.

- 3. Undertaking:** "The [Institute/ Organisation/University (name only)] has not obtained or applied for assistance for the same purpose/activity for[Name of study] from any Ministry/Department of Central Government / State Governments. It is solely depending on the assistance of NITI Aayog". [To be given separately on A4 size paper]

4. Information of PI and Organisation

Details of Bidder	
1	Name of the Principal Investigator (PI)
2	Address of PI
3	Status of the Organisation (Public Ltd./Pvt.Ltd./ NGO/Society/Trust/University/Autonomous Body/ Deemed University)
4	Status as per Registration certificate/Act
	Name and Designation of the contact person/PI and Co-PI to whom all communication shall be made
	Telephone No. (with STD code)

5	Mobile Number	
	Email of the Contact/keyperson	
	Fax No.(with STD code)	
	Website:	

Name and Signature of the Principal Investigator
(PI)

Name and Signature of the Head of the Institution
/Registrar (if university)/Principal (if college)

Date:

Official Seal

Place: