

India's Research & Innovation potential across education system

A single integrated LIVE report spanning quantified benchmarks, deep-sector insights and the broader innovation landscape for Indian institutes.

RESEARCH | INSIGHTS | COLLABORATION | IMPACT

INNOVATION
FOR A STRONGER
TOMORROW



IDEAS
PEOPLE
INSTITUTIONS
A BRIGHTER INDI



Purpose

India's Research & Innovation Potential Across Education System is IvyCap Ventures' systematic attempt to assess how effectively India's leading technical institutions convert research, talent and infrastructure into startups, funded companies, intellectual property, commercialisation and enterprise-scale outcomes, while identifying the gaps that constrain this journey.

This edition establishes an IvyCap-specific benchmark combining quantitative institutional assessment, deep-tech ecosystem mapping, and a broader research-to-commercialisation baseline. The objective is to identify institutional strengths, capability gaps and areas of opportunity, and to understand where greater support, capital and ecosystem interventions can help translate India's research potential into innovation, entrepreneurship and measurable impact.

01**Quantified
Benchmark****02****Deep-Tech
Atlas****03****Institution
Baseline****EDITION****1st Edition, 2026 (Live Document)****PUBLISHER****IvyCap Ventures****COVERAGE**

quantified benchmarks, deep-tech sector insights and the broader innovation landscape for Indian Institutes

PUBLICATION DATE**2026**

What this report is, and is not

WHAT IT IS

- A benchmark of innovation-to-impact capability across India's leading technical institutions, examining research capabilities, translation pathways and commercialisation outcomes

WHAT IT IS NOT

- × Not a ranking of overall institutional quality, teaching quality or academic excellence.
- × Not a numerical ranking of Indian institutions, nor an investment recommendation or substitute for institute-specific due diligence.

A NOTE ON DATA

Data availability varies across the three analytical layers. The core Indian Institutes benchmark is based on the required underlying data collected for the selected cohort. For the broader Indian Institutes ecosystem scan and national institutional baseline, certain points were not available at the time of compilation. We had reached out to the relevant stakeholders for the required data; however, due to its unavailability at the time of compilation, these data points could not be incorporated. Where data was unavailable, we have not estimated or inferred values. As this is a living report, we will continue to update it as and when additional data becomes available.

CONTENTS

Contents

The report is organised as a journey from context to benchmark to action.

01 CONTEXT

Purpose	2
What this report is, and is not	3
Foreword	5–6
About IvyCap	7
Executive Summary	8
Headline Result	9
Key Findings to Carry Forward	10
Why This Report?	12
Why Now?	13
From Research to Impact	14
The Core Question	15

02 BENCHMARK

The Eight Dimensions	16
Methodology at a Glance	17
Parameter Definitions	18
Weightages & Scoring	19
Normalisation & Ranking Method	19
Data Validation & Limitations	20
Scope Statement	20
How to Read the Index	21
Overall Ranking – Core Cohort	22
Overall Ranking – 31 Institutes	23
Twelve Original Findings	24

03 ATLAS & ACTION

Deeptech Innovation	25
Focus Areas	26
Beyond the Core Cohort	27
Beyond the Institutes	32
From Ranking to Sector Leadership	33
Eight Sector Chapters	36
Key Findings	53
The Road Ahead	59
Closing Message	62
Glossary & Acronyms	63
Sources & References	65
Editors and Contributors	69
Disclaimer	70



Foreword

Vikram Gupta

Founder & Managing Partner,
IvyCap Ventures

India's innovation story is entering an important new phase. Over the past decade, India has built remarkable capabilities across DeepTech, particularly in areas such as defence, space, semiconductors, energy efficiency and climate technology, alongside significant progress in education, research, technology and entrepreneurship.

Our leading academic and research institutions are producing world-class talent, generating significant intellectual property and increasingly creating technologies with the potential to address some of the country's most complex challenges.

Alongside the established institutions, newer and emerging institutions are also contributing to this growing ecosystem. The question before us now is not whether India has the capacity to innovate, but how effectively we can translate that capacity into impact.

This report is IvyCap Ventures' attempt to examine this journey more systematically. It looks be-

yond conventional measures of academic excellence to understand how effectively institutions convert research, talent and infrastructure into startups, intellectual property, commercialisation and, ultimately, enterprise-scale outcomes. Importantly, the report looks beyond the IIT ecosystem to capture a broader set of leading institutions that are contributing to India's research and innovation landscape.

The report brings together data and insights from 30 leading institutions, including Indian Institutes, IISc, NITs, Plaksha and other institutions that are playing an increasingly important role in shaping India's innovation ecosystem.

Within this broader landscape, our IIT core benchmark provides a focused quantitative assessment of startup creation, funding, innovation infrastructure, scale and outcomes, and research impact. While currently IIT Madras leads this benchmark with a composite score of 88.54, followed by IIT Bombay and IIT Delhi, we are expecting some of the other IITs and other technical institutions moving very fast in Research, Development and Innovation. The underlying dataset captures 3,139 IIT-background founder startups between 2021 and 2025, more than 10,000 patents filed, over 5,400 patents granted and 1,069 commercialisa-

tion outcomes. The ecosystem has also produced significant scale, with 717 major outcome events including unicorns, acquisitions and IPOs.

We also recognise that no single report can capture an ecosystem that is evolving this rapidly. Data availability, institutional maturity and commercialisation pathways vary across institutions, and the innovation landscape itself continues to change. This is therefore intended to be a living report, which we will continue to update as new data and evidence become available.

FOREWORD • CONTINUED

VIKRAM GUPTA • IVYCAP VENTURES

The findings are both encouraging and instructive. Within the core IIT dataset, the top three institutions account for approximately 58% of the startup-creation measure and 67% of the combined funding measure. This concentration presents both a challenge and an opportunity. India's innovation potential extends well beyond a handful of institutions. The broader set of institutions covered in this report demonstrates that there is a much wider base of research capability, talent and entrepreneurial potential that can be developed and connected to capital, industry and markets.

The report also takes a deeper look at DeepTech and research-led innovation. The Deep-Tech Translation Atlas maps research strengths, sector capabilities and visible pathways from research towards commercialisation, rather than simply ranking institutions. Alongside this, the wider institutional coverage provides a broader

view of where research capabilities and innovation potential are emerging across India. Together, these perspectives help us understand not just where innovation is happening today, but where the next opportunities for technology translation and enterprise creation may emerge.

For IvyCap, this question is deeply connected to our investment philosophy. We have always believed that capital is most effective when it is supported by the right ecosystem—one that connects researchers with entrepreneurs, institutions with industry, and ideas with capital and markets. DeepTech and research-led innovation require patience, specialised expertise, infrastructure and partnerships. Strengthening these connections across India's institutions will be critical if the country is to move from being a large consumer of technology to becoming a

significant creator of intellectual property and globally competitive technology companies.

IvyCap Ventures has announced the launch of the Super Endowment Fund, with a target corpus of approximately ₹1,000 crore, as part of the Bharat Innovates initiative. Envisioned as a perpetual and self-sustaining source of capital, the Fund aims to provide long-term support to DeepTech startups while strengthening research, innovation, entrepreneurship and technology translation across the IIT network. It seeks to build stronger linkages between academia, industry, investors and alumni networks, enabling breakthrough technologies, startup creation and intellectual property generation. Managed by IvyCap Ventures, a pioneer in institution-linked investment and endowment models, the Fund will help premier institutions such as IIT Roorkee translate research and IP into commercially viable tech-

nologies and globally competitive ventures, advancing India's journey towards becoming the IP capital of the world.

Our hope is that this report serves as a starting point for a broader and more meaningful conversation on India's research and innovation ecosystem. By bringing together evidence on research, talent, intellectual property, entrepreneurship, funding and commercialisation across a diverse set of institutions, we hope it can help institutions identify opportunities, enable policymakers to strengthen the ecosystem, encourage researchers and entrepreneurs to pursue pathways to market, and help investors recognise the potential emerging from India's institutions. Ultimately, the opportunity is to build stronger bridges between research and enterprise across the country, so that more ideas move beyond the laboratory to create enduring businesses, technologies and impact.

Vikram Gupta

Founder & Managing Partner, IvyCap Ventures

About IvyCap

The ecosystem position behind the Index

2011

FOUNDED

\$650m

ASSETS UNDER MANAGEMENT

70+

PORTFOLIO COMPANIES

Founded in 2011, IvyCap Ventures is one of India's leading homegrown venture capital funds, leveraging the IIT and IIM alumni ecosystems to power the Indian startup landscape and build market leaders.

IvyCap is a sector-agnostic fund investing across early to growth-stage companies, including Seed, Pre-Series A, Series A and Series B, with a focus on innovative, technology-based products, services and business solutions that have the potential to scale and lead in competitive markets. IvyCap has managed assets over US\$650 million (₹6,000 crore) in assets and has a portfolio of 70+ companies across sectors spanning areas including

HealthTech, Consumer Tech, DeepTech, FinTech, EdTech, AgriTech and EVs.

Beyond investing, IvyCap has developed an ecosystem model that connects founders, alumni, investors, corporates, government, academia and domain experts. Through its institute and alumni engagement platform, IvyCap works with academia to support founders, facilitate mentorship, conduct masterclasses, create industry linkages and enable POCs

A distinctive part of this model is IvyCap's Endowment, IvyCap created India's first Endowment Fund at IIT Delhi in 2019 and has continued to build an institutional model through which a portion of the Fund Manager's profits is contributed back to academia. The objective is to

strengthen the research, innovation, entrepreneurship across Institutions.

This has now evolved into the **Super Endowment Fund**—an initial ₹1,000 crore corpus to create a perpetual and self-sustaining source of capital for India's research, development & Innovation.

The Super Endowment represents the next step in this model: moving from institution-level endowments towards a broader, compounding pool of capital that can support research excellence, technology translation, intellectual property creation and DeepTech entrepreneurship.

This positioning makes IvyCap particularly relevant to understanding **India's Research and**

Innovation Potential Across the Education System. The Index examines a closely related question: how effectively are India's leading institutions converting research capability, talent, intellectual property and institutional strengths into startups, technologies, commercialisation and broader societal impact? The Super Endowment provides an emerging institutional mechanism to help close this translation gap—connecting academic research with capital, entrepreneurship and pathways to scale.

The Index is therefore aligned with a core dimension of IvyCap's ecosystem model: connecting institutional capability with entrepreneurial talent, industry demand and capital to move innovation from the lab towards the market.

Executive Summary

What the first edition tells us

The 2026 edition brings together three complementary analytical layers.

01

LAYER 01

Core institute benchmark

The core Indian Institutes benchmark provides the report's only composite quantitative ranking, using five weighted pillars: Startup Creation (25%), Funding (20%), Innovation Infrastructure (15%), Scale & Outcomes (15%), and Research Impact (25%), with Research Impact measured through patents filed, patents granted and commercialisation activity.

02

LAYER 02

Deep-Tech Translation Atlas

The Deep-Tech Translation Atlas extends the analysis across the Indian Institutes, mapping research capabilities, sector strengths, translation pathways and visible commercialisation evidence. It is an evidence-led ecosystem scan, not an institutional ranking.

03

LAYER 03

Broader national baseline

The broader national baseline extends the lens beyond the Indian Institutes to 31 institutions, providing a provisional public-evidence view of the composite score described in Layer 01. It is designed as a complementary baseline rather than a replacement for the core institute benchmark.

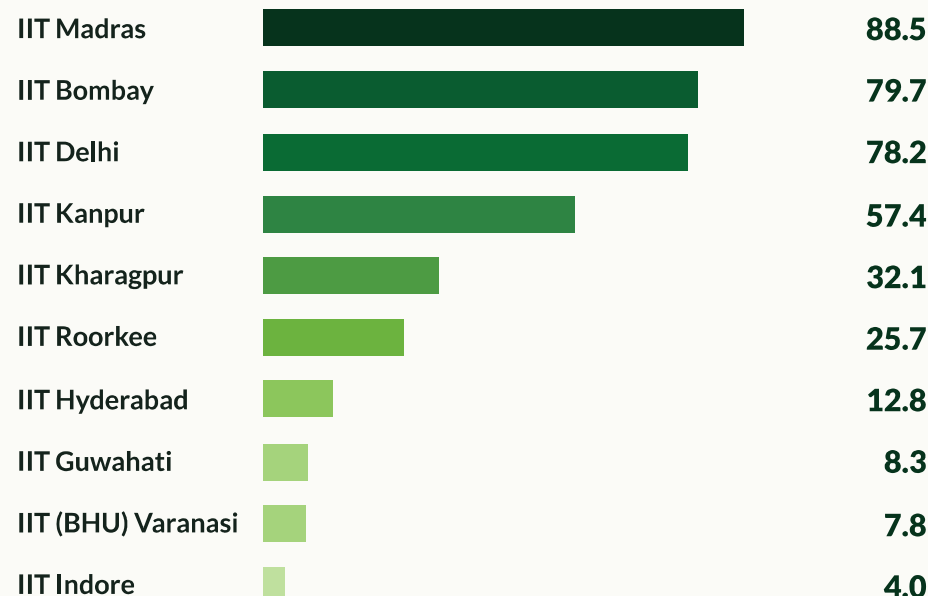
Core Benchmark for selected cohort

Within the IIT quantitative cohort, IIT Madras ranks first with a composite score of 88.54, followed by IIT Bombay at 79.71 and IIT Delhi at 78.21.

The underlying dataset captures 3,139 IIT-background founder startups (2021–25), 10,420 patents filed, 5,450 patents granted and 1,069 commercialisation outcomes. The Scale & Outcomes pillar records 717 major outcome events, including unicorns, soonicorns, decacorns, acquisitions and IPOs.

Activity is concentrated: the top three IITs account for approximately 58% of the startup-creation measure and 67% of the combined funding measure used in the core Index.

COMPOSITE INNOVATION-TO-IMPACT SCORE (0–100)



Taken together, the three layers point to a broader conclusion: India has substantial institutional research and technology capability, but the critical opportunity lies in strengthening the conversion pathway from research and IP to startups, customers, commercialisation and scale. The Indian Institutes scan shows that this capability is increasingly distributed across specialised emerging ecosystems, while the national baseline points towards a wider institutional landscape that can be incorporated into future editions.

FIGURE — COMPOSITE SCORE BY INSTITUTE, 2026 INDEX

Key Findings to Carry Forward

1 Leadership is distributed across different dimensions

No single institute dominates every dimension of innovation-to-impact. IIT Madras leads on research, funding and the overall composite score; IIT Delhi leads on startup creation, scale & outcomes and innovation infrastructure; while IIT Bombay leads on infrastructure and reported patent grants.

2 The institute ecosystem is becoming broader and more specialised

The institute scan shows that deeptech capability extends beyond the traditional leaders. Alongside broad-based ecosystems such as IIT Madras, IIT Bombay and IIT Delhi, emerging institutes are developing specialised strengths across areas including space, materials, energy, healthtech, agritech, AI/ML, robotics and semiconductors.

3 The next opportunity lies beyond the established leaders

The core benchmark reveals maturity gaps in startup creation, scale and commercialisation across several institutions while the wider institute scan identifies emerging nodes with specialised capabilities. The opportunity is therefore not simply to identify leaders, but to build the missing bridges between research, IP, startups, capital, industry and scale.

4 Research strength does not automatically translate into market impact

High research and IP output does not consistently produce proportionate commercialisation, startup creation or scale. The central challenge is increasingly one of conversion: moving from research → IP → prototype → startup → industry adoption → scale

Key Findings to Carry Forward (continued)

5

Deeptech strength is broadening across the institute ecosystem

The institute-level mapping shows strong and growing capabilities across AI/ML, semiconductors, healthtech, robotics, clean energy, batteries and other deeptech domains. While the depth and maturity of these capabilities vary by institute, the breadth of activity demonstrates that deeptech is no longer concentrated within a handful of leading Indian Institutes. Emerging Institutes are also developing specialised research, technology and innovation capabilities, creating a broader pipeline for future startups, IP commercialisation and technology-led enterprises.

6

Beyond the Indian Institutes: what the national baseline reveals

The institution baseline suggests that India's innovation capability is concentrated among a relatively small group of mature institutions, but the opportunity extends well beyond the Indian Institutes system — with research-intensive, entrepreneurial, technology-focused and applied institutions contributing different pieces of the national innovation-to-impact ecosystem.

VALUE REPRESENTED IN THE DATASET FOR THE CORE COHORT

10

ACADEMIC
INSTITUTIONS IN THE
FIRST COHORT

3,139

REPORTED IIT-
BACKGROUND
FOUNDER STARTUPS

10,420

PATENTS FILED

5,450

PATENTS GRANTED

1,069

COMMERCIALISATION
MEASURE

717

SCALE & OUTCOME
EVENTS

3,482

COMPANY-LEVEL RECORDS IN LONGLIST

WHY THIS REPORT

Why This Report?

From ranking innovation to understanding the innovation pipeline

Traditional institutional rankings tend to emphasise research publications, patents, grants and academic performance. While these measures are important, they do not fully capture what happens after research and talent are created.

This Index looks at innovation as a journey—from institutional capability to IP, startups, funding, industry adoption, commercialisation and scale. The focus is therefore not only on the strength of research, but on how effectively that strength translates into real-world outcomes.

India's leading technical institutions produce exceptional researchers, engineers and founders. The gap lies in consistently

measuring how this institutional strength translates into technologies, startups, businesses and broader economic impact.

Existing domestic and global rankings largely measure academic inputs and outputs such as faculty strength, citations, infrastructure and placements. These metrics serve an important purpose, but they answer a different question from the one relevant to founders, corporates and investors.

This Index focuses on that missing dimension: how effectively research, talent and institutional capabilities are converted into companies, technologies and scalable outcomes.

THE QUESTION

NOT SIMPLY

“Which institution is the most innovative?”

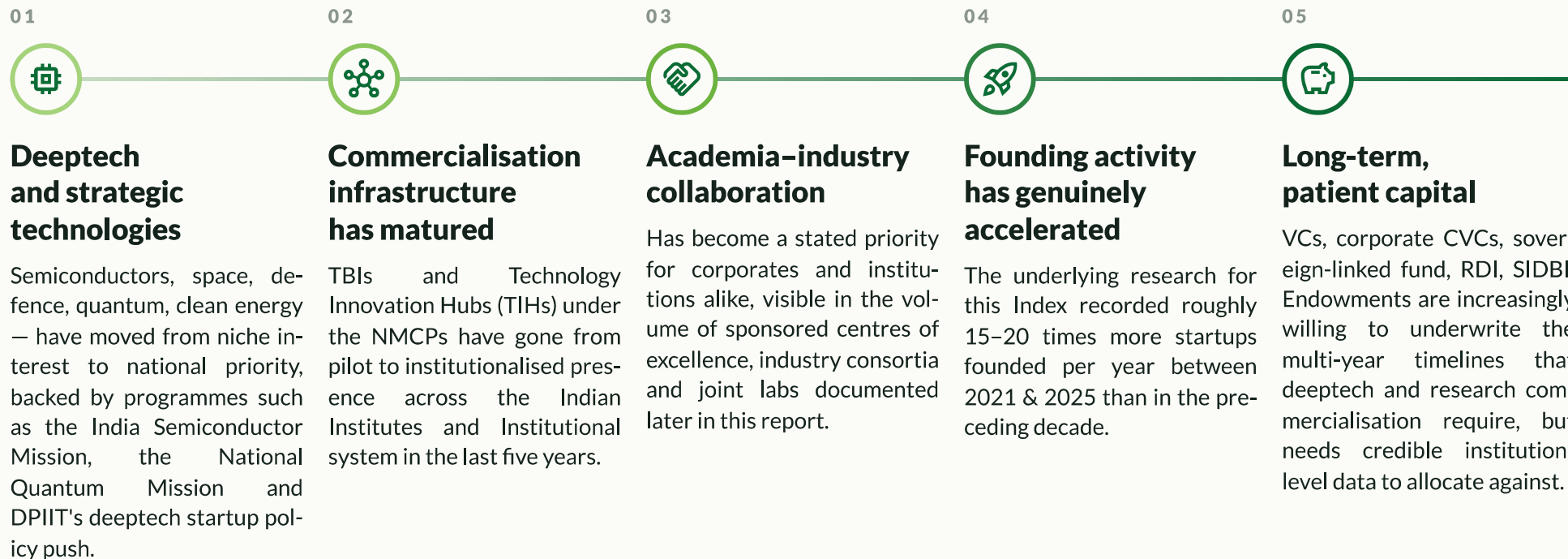
BUT

“Which institutional ecosystems demonstrate the strongest ability to convert knowledge, technology and talent into entrepreneurial, commercial and scalable outcomes?” and where do critical gaps remain.

Why Now?

India's innovation system is moving from creation towards translation

India's innovation economy is at an inflection point that makes this measurement newly urgent and newly possible.



15–20×

MORE STARTUPS FOUNDED PER YEAR,
2021–2025 VS THE PRECEDING
DECADE

CREATION

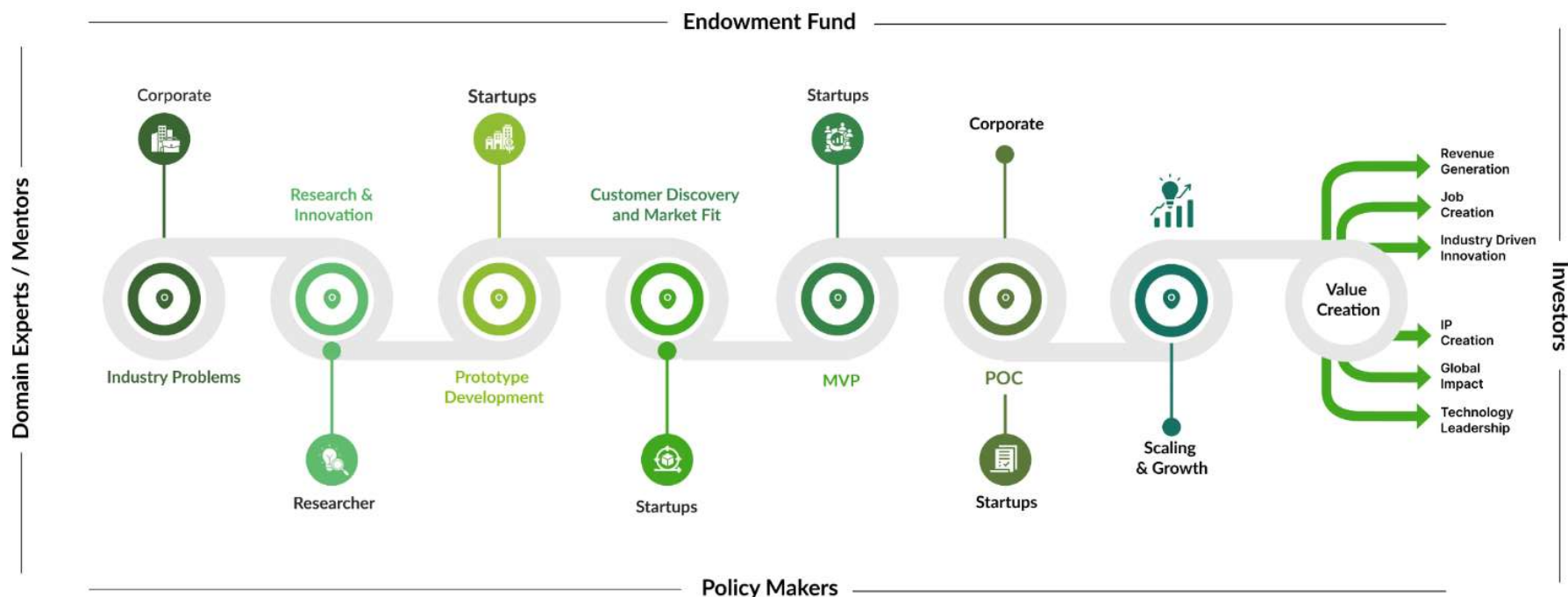
TRANSLATION

FROM RESEARCH TO IMPACT

From Research to Impact

IvyCap's The innovation-to-impact journey

The Index does not claim that every stage is a linear process. Instead, the framework highlights the links that determine whether institutional innovation can become enterprise and impact.



The Core Question

What makes an institution an innovation leader?

The Index defines innovation leadership as a combination of creation, translation, entrepreneurial activity and ecosystem reach. A high-performing institution is not expected to lead on every dimension; rather, it should demonstrate a meaningful ability to move from institutional capability to measurable innovation outcomes.

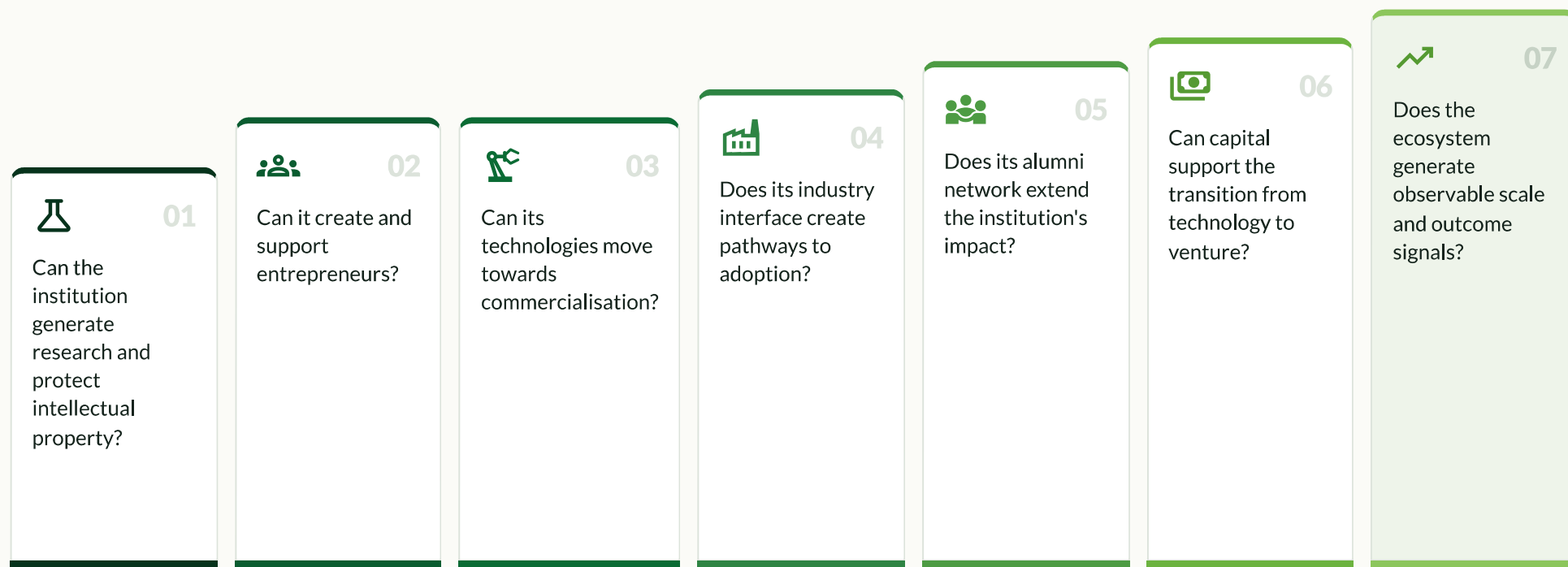


**WORKING
DEFINITION**

Innovation-to-impact capability = the demonstrated ability of an institution and its surrounding ecosystem to convert knowledge, technology and talent into entrepreneurial, commercial and scalable outcomes.

SEVEN TESTS OF INNOVATION LEADERSHIP

CREATION → TRANSLATION → SCALE



The Eight Dimensions

What the ranking concept measures

CAPABILITY ————— IMPACT

01

Research & Innovation

Institutional ability to generate research and innovation outputs that can feed the downstream pipeline.

02

IP & Technology

Patent creation, patent grants and commercialisation signals that indicate movement from knowledge to protectable technology.

03

Entrepreneurship

Startup creation associated with Alumni Background founders and the surrounding incubation ecosystem.

04

Commercialisation

Evidence that institutional technology is moving beyond research towards market-facing outcomes.

05

Industry Engagement

The extent to which institutional capability can connect to corporate problems, pilots, partnerships and adoption.

06

Alumni Impact

The broader contribution of alumni as founders, investors, leaders, mentors and connectors.

07

Capital & Venture Creation

Funding and venture signals that indicate the ability of technologies and founders to attract capital.

08

Scale & Impact

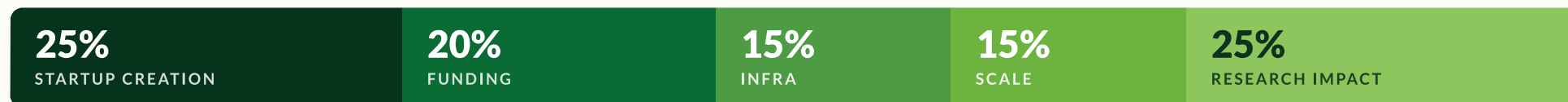
Observable outcomes including unicorns, soonicorns, decacorns, acquisitions and IPOs in the supplied dataset.

This eight-dimension model is the full conceptual map this Index aspires to measure over successive editions. The next page explains how the 2026 edition operationalises it, given data available today.

Methodology at a Glance

Five weighted pillars underpin the composite score

Comprehensive, comparable, sourced data does not yet exist in India for all eight conceptual dimensions above. The 2026 Index therefore operationalises the framework through five composite pillars that map onto the eight dimensions as follows:



PILLAR	WEIGHT	BUILT FROM
 Startup Creation	 25%	Number of Institute-linked startups founded (2021–2025) + TBI & TIH (all time)
 Funding	 20%	Total equity funding raised by Institute linked startups (2021–2025) + TBI & TIH (all time)
 Innovation Infrastructure	 15%	Count of CoEs, incubators, THIs and TIHs
 Scale & Outcomes	 15%	Unicorns, soonicorns, decacorns, Dragons, acquisitions, IPOs (2021–2025) + TBI & TIH (all time)
 Research Impact	 25%	Patents filed, patents granted, commercialisation activity
Composite	100	

COMPOSITE FORMULA

$$\text{Composite} = 25\% \times \text{Startup} + 20\% \times \text{Funding} + 15\% \times \text{Infrastructure} + 15\% \times \text{Scale} + 25\% \times \text{Research Impact}$$

Parameter Definitions

Making the ranking interpretable and repeatable

PARAMETER	DEFINITION USED IN THIS DRAFT	UNIT
Startup Creation	Number of startups created by founders whose background is the specific Institute in the supplied 2021–2025 dataset.	Count
Funding Success	Total equity amount of funding raised by the founder-startup set in the supplied dataset.	USD bn
Scale & Outcome	Combined count of unicorns, soonicorns, decacorns, acquisitions, IPOs and dragons as defined in the workbook.	Count
Patents Filed	Patent applications/filings reported for the institute in the supplied data.	Count
Patents Granted	Patent grants reported for the institute in the supplied data.	Count
Commercialisation	Commercialisation measure supplied for the institute.	Count
TBI	Startups created/supported by technology business incubators in the supplied dataset.	Count
TIH	Startups created/supported by technology innovation hubs in the supplied dataset.	Count
Innovation Infrastructure	Composite infrastructure input derived from incubator/TIH/CoE-related fields in the ranking workbook.	Normalised score

FUNDING IS AGGREGATED IN NOMINAL USD AS SUPPLIED FOR 2021–25; IT IS NOT INFLATION-ADJUSTED AND NO SINGLE CONVERSION RATE OR ROUND VINTAGE IS APPLIED.

SOURCE: IVYCAP DAY REPORT METRICS.XLSX — METRICS AND RAW NUMBERS SHEETS; METHODOLOGY NOTE IN METRICS.

Weightages & Scoring

How the overall score is constructed for the core institute cohort

DIMENSION SCORE MATRIX (0-100) – INPUTS TO THE COMPOSITE

INSTITUTE	STARTUP	FUNDING	INFRA	SCALE	RES
IIT Madras	90	100	93	58	94
IIT Bombay	77	52	100	95	84
IIT Delhi	100	71	60	100	61
IIT Kanpur	81	48	45	47	56
IIT Kharagpur	34	41	29	57	10
IIT Roorkee	51	8	17	25	21
IIT Hyderabad	17	1	33	0	14
IIT Guwahati	11	6	26	0	1
IIT (BHU) Varanasi	0	5	12	0	20
IIT Indore	11	0	0	0	5

The workbook uses min-max normalisation to place the relevant raw measures on a 0–100 scale. The Research Impact score is the simple average of the normalised patent-filed, patent-granted and commercialisation measures. The composite score then applies the five stated weights.

WHY THE WEIGHTING MATTERS

- **Startup Creation** and **Research Impact** each receive 25%, making creation of ventures and strength of technology/IP equally important in the composite.
- **Funding** receives 20%, capturing the ability of the ecosystem to attract capital.
- **Infrastructure** and **Scale & Outcomes** each receive 15%, recognising ecosystem capacity and observable outcomes.

Normalisation & Ranking Method

Comparing institutions on a common scale

The ranking workbook normalises component measures to a 0–100 range using min-max normalisation. This makes differently scaled raw indicators comparable within the ten-institute cohort.

The resulting component scores are combined according to the stated weights. The highest composite score receives Rank 1.

INTERPRETATION

A score of 100 on a component means the highest observed value within this ten-institute cohort for that component; it does not mean a perfect or globally benchmarked score.

0 – LOWEST IN COHORT

100 – HIGHEST IN COHORT



Data Validation & Limitations

What readers should know before using the Index

Three checks were applied before including any figure: cross-verification against institutional and public sources; explicit marking of missing data rather than estimation; and clear separation of alumni-founded startups, incubator-supported startups, TBIs and TIHs.

The Index uses a conservative methodology: where reliable data is unavailable, activity is not estimated. This may understate performance, particularly for institutes with less mature or less publicly reported innovation ecosystems.

The Index should therefore be viewed as a rigorous, evidence-based benchmarking tool—not an absolute measure of institutional innovation capacity, which will be updated live.

The core benchmark — scope statement

Read this before the ranking

The composite Index in the core benchmark is calculated only for the original core cohort of Indian Institutes, selected on the basis of the availability of sufficiently comparable underlying data. The ranking should therefore be interpreted as a focused benchmark of the selected cohort, rather than a ranking of all Indian Institutes.

10

Academic institutions form the quantified cohort. The remaining Institutes are covered through the evidence-led Atlas, not an extended numerical score.

HOW TO READ THIS REPORT

ANALYTICAL LAYER	COVERAGE	WHAT IT TELLS US
Core Index — core benchmark	Core Indian Institutes cohort	Comparable quantitative benchmark
Institute ecosystem scan — Deep-Tech Translation Atlas	Indian Institutes	Sector strengths, research and translation capability
Broader ecosystem scan — national baseline	Selected non-IIT institutions	Emerging national innovation nodes

Three reading cautions follow directly from this methodology and are set out in full under How to Read the Index: scores are relative to this ten-institute cohort; dimension leadership can differ from overall rank; and data completeness affects scores directly.

HOW TO READ THE INDEX

How to Read the Index

The ranking is a diagnostic, not a verdict

The overall ranking provides a simple benchmark, but the more important analytical layer is the pattern of component scores. Two institutions with similar composite scores can have materially different profiles; conversely, a lower-ranked institution can be a leader in a specific capability.

How to Read the Ranking. This Index measures innovation-to-impact capability, not overall institutional excellence. A lower Index rank does not imply weaker teaching, research quality or student outcomes — it reflects, specifically, how much of that institute's research and talent is currently converting into startups, funded companies, patents and scale outcomes relative to its peers in this cohort.

SEVEN LIMITS ON INTERPRETATION — THREE READING CAUTIONS FROM THE METHODOLOGY, AND FOUR FURTHER LIMITS

Caution 01**Scores are relative, not absolute**

Scores are relative to this ten-institute cohort. A pillar score of 100 means "strongest among these ten," not "cannot be improved upon."

Caution 02**Dimension leadership can differ from rank**

An institute can rank low overall while leading a specific dimension (see the dimension score matrix under Weightages & Scoring) — the Composite Score rewards balanced conversion across all five pillars, which is deliberately harder to achieve than excelling in just one.

Caution 03**Data completeness affects scores**

Data completeness affects scores directly (see Methodological Limitations). A lower rank may in part reflect thinner available data rather than genuinely lower activity.

Limit 04**A high score is not a solved ecosystem**

A leading composite score indicates stronger conversion relative to this cohort. It does not mean an institution's innovation ecosystem is complete, mature or free of the gaps set out later in this report.

Limit 05**Scores are indicative, not precise**

Composite scores are shown to one decimal for ordering only. Given the acknowledged data gaps, small differences between adjacent institutes should not be treated as meaningful; the Foreword quotes the unrounded value of the leading score.

Limit 06**No adjustment for size or age**

Measures are absolute counts and totals, with no normalisation for faculty numbers, enrolment, budget or year of establishment. Larger and older institutions are therefore structurally advantaged, and rank may partly reflect scale rather than conversion effectiveness.

Limit 07**Funding is nominal USD, 2021–25**

The funding measure is total equity raised over 2021–25, aggregated in nominal US dollars as supplied. It is not inflation-adjusted, not converted at a single stated exchange rate, and not normalised for the vintage of individual rounds.

For this reason, institutes are best read through their pattern of strength rather than by rank alone — a complementary lens that we believe is often more actionable than the ordinal ranking itself.

Overall Ranking

For core Indian Institutes cohort where proper data obtained

Ranks here are computed on the ten-institute quantified cohort only. They are not comparable with the provisional 31-institution baseline that follows, which is scored on a different cohort and a different evidence base.

RANK	INSTITUTE	COMPOSITE SCORE	STARTUP	FUNDING	INFRA	SCALE	RES
1	IIT Madras	88.5	90	100	93	58	94
2	IIT Bombay	79.7	77	52	100	95	84
3	IIT Delhi	78.2	100	71	60	100	61
4	IIT Kanpur	57.4	81	48	45	47	56
5	IIT KGP	32.1	34	41	29	57	10
6	IITR	25.7	51	8	17	25	21
7	IIT Hyd	12.8	17	1	33	0	14
8	IITG	8.3	11	6	26	0	1
9	IIT (BHU) Varanasi	7.8	0	5	12	0	20
10	IIT Indore	4	11	0	0	0	5

Overall Ranking – Technology Institutes

For Selected 31 Institutions

A provisional public-evidence baseline scored across a wider cohort. Because the cohort and evidence base differ, an institution's position here will not match its rank in the ten-institute core benchmark on the preceding page.

● ACTUAL ● PUBLIC DOMAIN

RANK	INSTITUTE	EVIDENCE TYPE
1	IIT Madras	ACTUAL
2	IIT Bombay	ACTUAL
3	IIT Kanpur	ACTUAL
4	IIT Kharagpur	ACTUAL
5	IIT Delhi	ACTUAL
6	IIT Mandi	PUBLIC DOMAIN
7	IISc Bengaluru	PUBLIC DOMAIN
8	IIT (BHU) Varanasi	ACTUAL
9	IIIT Hyderabad	PUBLIC DOMAIN
10	BITS Pilani	PUBLIC DOMAIN
11	IIT Guwahati	ACTUAL
12	IIT Roorkee	ACTUAL
13	IIT Ropar	PUBLIC DOMAIN
14	IIT Hyderabad	ACTUAL
15	IIT Patna	PUBLIC DOMAIN

RANK	INSTITUTE	EVIDENCE TYPE
16	Manipal (MAHE)	PUBLIC DOMAIN
17	IIT Indore	ACTUAL
18	IIT Jodhpur	PUBLIC DOMAIN
19	IIT Bhubaneswar	PUBLIC DOMAIN
20	IIT Palakkad	PUBLIC DOMAIN
21	IIT Gandhinagar	PUBLIC DOMAIN
22	IIT (ISM) Dhanbad	PUBLIC DOMAIN
23	IIT Tirupati	PUBLIC DOMAIN
24	IIT Bhilai	PUBLIC DOMAIN
25	IIT Dharwad	PUBLIC DOMAIN
26	IIT Jammu	PUBLIC DOMAIN
27	IIT Goa	PUBLIC DOMAIN
28	MNNIT Allahabad	PUBLIC DOMAIN
29	NIT Karnataka Surathkal	PUBLIC DOMAIN
30	NIT Kurukshetra	PUBLIC DOMAIN
31	Plaksha University	PUBLIC DOMAIN

Twelve Original Findings Beneath the Composite

The first seven are calculated directly from the supplied dataset; the remainder come from combining it with the sector scan in Part VI. Calculations are original analysis; denominators do not represent one common vintage, so these are directional findings, not audited ratios.

- 01 IIT Delhi is the most balanced top-three ecosystem**
Its weakest pillar is 60, above IIT Madras at 58 and IIT Bombay at 52.
- 02 IIT Madras's bottleneck is scale**
A composite score of 88.5 coexists with a scale score of 58.
- 03 IIT Bombay's infrastructure is not matched by capital**
Infrastructure scores 100; funding scores 52.
- 04 Nearly half of filings do not appear as grants**
5,450 grants against 10,420 filings gives a 52.3% cohort ratio.
- 05 Commercial outcomes are about one-tenth of filings**
1,069 outcomes ÷ 10,420 filings = 10.3%. This is intensity, not legal patent conversion.
- 06 Scale-event intensity is 22.8%**
717 outcome events ÷ 3,139 founder startups. Events can overlap and time windows differ.
- 07 Capital is more concentrated than startup formation**
58.3% of founder startups sit in the top three, versus 67% of funding.

- 08 IIT Madras has unusually high directional funding intensity**
\$4.18bn across 437 recent founders, roughly \$9.6m each, versus \$3.3m Delhi and \$3.6m Bombay.
- 09 Sector leadership rotates**
IIT Bombay is the biotech outcome leader; IIT Delhi is the defence transfer leader (see the sector chapters).
- 10 Research leadership can differ from company-scale proof**
The clearest defence company proof comes from IIT Bombay's ideaForge while IIT Delhi leads current institutional research transfer.
- 11 The missing benchmark is a linked chain**
Public rankings count research and patents; sector reports count markets and funding. Few connect professor, lab, IP, venture and customer proof.
- 12 Activation is a more precise need than more infrastructure**
The opportunity is to make existing labs, IP and corporate relationships usable by investable ventures.

52.3%

GRANTS AGAINST
FILINGS, COHORT
RATIO

10.3%

COMMERCIAL
OUTCOMES ÷ FILINGS

22.8%

SCALE-EVENT
INTENSITY

Deeptech Innovation

The Indian Institutes shaping India's technology frontier

India's institute ecosystem is increasingly emerging as a deeptech engine, spanning AI/ML, quantum, semiconductors, robotics, biotech, clean energy, space, advanced materials and climate technologies. Importantly, this capability is becoming more distributed and specialised, extending beyond the older Indian Institutes.

The Indian Institutes mapping shows clear differentiation: IIT Madras, IIT Bombay and IIT Delhi have broad-based deeptech portfolios, while institutes such as IIT Tirupati (Space & Geospatial), IIT (ISM) Dhanbad

(Mining), IIT Gandhinagar (Materials, Energy & HealthTech), IIT Ropar (AgriTech & Climate), IIT Palakkad (AI/ML, Robotics & Semiconductors) and IIT Jodhpur (Defence, Biotech & Robotics) are building specialised technology niches.

The ecosystem is also moving beyond research infrastructure, with TIHs, CoEs, incubators, research parks and industry partnerships creating pathways from research to prototypes, startups and commercial applications.

WHAT THE MAPPING SHOWS

The Indian Institutes landscape broadly spans three levels:

01

Broad-based leaders

IIT Madras, IIT Bombay, IIT Delhi, IIT Hyderabad and IISc.

02

Specialised emerging ecosystems

IIT Gandhinagar, IIT Roorkee, IIT Ropar, IIT Jodhpur, IIT Tirupati, IIT Palakkad and IIT (ISM) Dhanbad.

03

Early-stage ecosystems

Newer Indian Institutes building research depth, infrastructure, IP and industry linkages.

The next opportunity is not simply to identify where deeptech research exists, but where institutional capability can be systematically converted into IP, startups, products and scale.

THE CONVERSION GAP

The opportunity is therefore to strengthen the commercialisation layer—technology transfer, proof-of-concept, funding, corporate procurement, founder pathways and specialised deeptech capital—to convert institutional research into scalable technologies and companies.

The key challenge is increasingly conversion, not capability: moving from research → IP → prototype → startup → industry adoption → scale. Deeptech requires patient capital, specialised infrastructure, industry validation and longer commercialisation cycles.

FOCUS AREAS

Indian Institutes — Focus Areas

Deep-Tech Translation Atlas

The landscape maps India's leading academic ecosystems across seven high-priority technology domains. Read across each row: the sector panel defines the innovation theme, the institute logos show the academic ecosystems with demonstrated strength in that domain, and the badge at right indicates the number of institutions identified. The selection reflects strength across research, talent, IP, startups, industry collaboration and national innovation initiatives



FIGURE — INSTITUTE FOCUS AREAS, PRIMARY AND SECONDARY, AS MAPPED IN THE IVYCAP INSTITUTE FOCUS FRAMEWORK.

CAPABILITY

IMPACT

Beyond the Core Cohort

A multi-dimensional view of the cohort

This edition's composite ranking covers the NIRF-benchmarked Indian Institutes with the most complete, comparable dataset. Further Indian Institutes — established between 2008 and 2016 — sit outside this edition's scoring on data-completeness grounds alone, not because their innovation activity is absent.

13

IIT Mandi

IIT Jammu

IIT Bhilai

IIT Gandhinagar

IIT Bhubaneswar

IIT Ropar

IIT Jodhpur

IIT Patna

IIT Tirupati

IIT Palakkad

IIT Dharwad

IIT Dhanbad

IIT Goa

5

IISc

NITs

IIITs

BITS

Plaksha

FROM CAPABILITY TO IP AMBITION

CONTEXT → CAPABILITY → COMMERCIALISATION → AMBITION

01

Context

India has substantial institutional research and technology capability.

02

Institutional capability

That capability is increasingly distributed across specialised emerging ecosystems.

03

Commercialisation

The opportunity lies in strengthening the conversion pathway from research and IP to startups, customers, commercialisation and scale.

04

India's IP ambition

Positioning India as the IP capital of the world.

SOURCE: DIRECTOR AND INSTITUTE-LEADERSHIP CONVERSATIONS CONDUCTED; INSTITUTE WEBSITES AND PUBLIC DISCLOSURES; QS WORLD UNIVERSITY RANKINGS BY SUBJECT 2026; TIMES HIGHER EDUCATION WORLD UNIVERSITY RANKINGS.

Beyond the Core Cohort — institute profiles 01 - 04



IIT Mandi

IIT Mandi is a technology-led, entrepreneurship-focused Institute with a distinctive deeptech ecosystem anchored by IIT Mandi Catalyst, with strengths across ClimateTech, AI/ML, Biotech & Intelligent Collaborative Systems. Its key differentiator is the translation of early-stage technologies into startups and the development of a wider Himalayan innovation ecosystem. Portfolio companies including Mitigata (\$5.9M Series A), Deep Algorithms Solutions (₹10.8 crore seed) and Medyseva Technologies (₹4 crore) demonstrate emerging venture-scale outcomes.



IIT Jammu

IIT Jammu is a technology-led, emerging entrepreneurship ecosystem anchored by I3C, with strengths across Aerospace & Defence, AI/ML, Robotics and Advanced Materials. Its key differentiator is the translation of deeptech research into strategic applications, particularly defence, propulsion and autonomous systems. Emerging ventures including MachFly Aerospace and Sakar Robotics demonstrate early research-to-startup translation, supported by its 20,000 sq. ft. Propulsion & Energy Research Laboratory and Catalyst 30 seed programme.



IIT Bhilai

IIT Bhilai is a technology-led, emerging innovation ecosystem anchored by IBITF, with strengths across FinTech, AI/ML, AgriTech, HealthTech and Advanced Materials. key differentiator is the translation of research into industry-linked applications, supported by its ₹55 crore Technology Innovation Hub and planned 10-acre Research Park. Its ecosystem spans incubation, seed-stage programmes and industrial R&D, with collaborations including Bhilai Steel Plant-SAIL, creating a pathway from academic research to technology commercialisation.



IIT Gandhinagar

IIT Gandhinagar has a research-led, industry-connected ecosystem spanning Clean Energy/Battery, Materials, HealthTech, Semiconductors and data-driven technologies. Its strongest emerging differentiator is semiconductor capability, supported by SAMARTH—the Silicon and Advanced Semiconductor Manufacturing Research and Training Hub, with a ₹190-crore investment, clean-room infrastructure and a target to train 10,000+ students and technicians.

Beyond the Core Cohort — institute profiles 05 - 08



IIT Bhubaneswar

IIT Bhubaneswar has an applied-technology ecosystem spanning Semiconductors, AI, Robotics, Drones, Clean Energy and Agritech. Its R&E Park supports incubation, technology validation & industry engagement. Semiconductor opportunity has strengthened with the 200 acre Odisha Semiconductor & ESDM Park being developed adjacent to the institute, alongside semiconductor research and skilling infrastructure. Together, these create a distinctive pathway from research & talent to industrial adoption & commercialisation.



IIT Ropar

IIT Ropar has a deeptech ecosystem anchored by iHub-AWaDH, with strengths across Agritech, WaterTech, AI, IoT and Cyber-Physical Systems. Its key differentiator is a strong research-to-startup pipeline, with 114 startups supported by late 2024. Its 100 Startups 100 Days initiative further expanded this ecosystem, reaching 160+ startups, ₹17 crore invested and ₹110+ crore externally raised by September 2025.



IIT Jodhpur

IIT Jodhpur has developed a distinctive technology identity around AI and Data Science, complemented by Biotech, Defence, HealthTech, Clean Energy, Robotics and semiconductor capabilities. Its explicit institutional focus on AI gives it a differentiated position among newer Indian Institutes. Validation: Its Medical Technologies and Healthcare Endowment Fund provides startup initiation grants to student innovators at early technology-readiness stages, demonstrating institutional support for technology translation.



IIT Patna

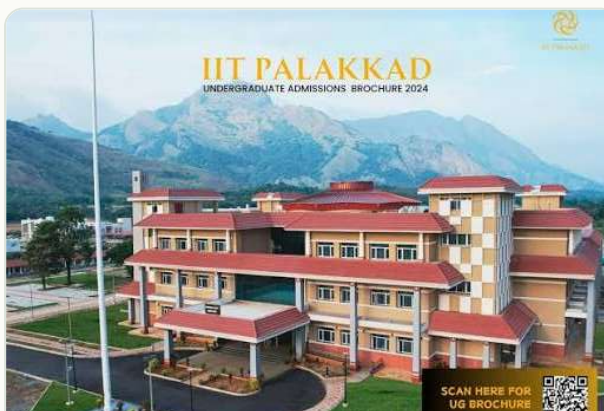
IIT Patna is developing an applied technology ecosystem around AI/ML, Robotics, HCI, Agrotech and HealthTech, with the Vishleshan I-Hub providing a distinctive focus on speech, video and text analytics. Its regional positioning also creates opportunities for technology applications in agriculture, healthcare and infrastructure. The growing I-Hub and applied AI ecosystem provides an early platform for translating research into technology solutions.

Beyond the Core Cohort — institute profiles 09 - 11



IIT Tirupati

IIT Tirupati is emerging as a specialised frontier-technology ecosystem with strengths in SpaceTech, Geospatial technologies, Semiconductors and precision technologies, supported by its Navavishkar I-Hub. Its focus on quantum sensing, atomic clocks and advanced geospatial systems gives it a distinctive technology position. The proposed AP FIRST science and technology centre, being developed with IIT Tirupati and IISER, is expected to focus on aerospace and defence, AI, cybersecurity, quantum, biotech and green energy



IIT Palakkad

IIT Palakkad is developing a focused ecosystem around Intelligent Systems, Automation, Control, 6G and Semiconductors. Its Technology Innovation Hub has supported technology-development projects and products, providing an early research-to-innovation base. Its ₹2,600-crore Phase-B expansion, including a dedicated research park, is expected to substantially strengthen research capacity and industry collaboration.



IIT Goa

IIT Goa is an early-stage, focused technology ecosystem with emerging strength in Robotics and engineering research. Its opportunity is to build a small number of high-conviction technology clusters rather than replicate the broad ecosystems of older Indian Institutes. ANRF-supported research in robotic systems, including design, modelling and prototype fabrication, provides an early signal of technology capability.

Beyond the Core Cohort – institute profiles

12 - 14



IIT (ISM) Dhanbad

IIT (ISM) Dhanbad has a highly differentiated innovation profile rooted in Mining & Exploration, complemented by ESDM, Medical Electronics and industrial technologies. Its opportunity is to extend this legacy into critical minerals, industrial technology, EVs, electronics and cybersecurity. Its incubation portfolio includes startups such as Zionix Motors and Raftaar in EV mobility, Smart Vitals in HealthTech and Sensilog in IoT, while recent critical-minerals partnerships reinforce its strategic technology relevance.



IIT Dharwad

IIT Dharwad is emerging as an applied-research and technology-development hub with strengths in Smart Systems, AI/Data Science, Agriculture, Robotics, Healthcare and advanced manufacturing. Its location provides an opportunity to become a technology anchor for North Karnataka beyond Bengaluru. The institute has accumulated ₹179 crore in sponsored research, consultancy, CSR and research-initiation projects, including agricultural drones, precision agriculture, robotics and medical diagnostics, alongside an ₹18-crore Centre of Excellence in Defence Technology and Industry 5.0.



BITS (Pilani, Goa, Hyderabad)

BITS Pilani, across its Pilani, Hyderabad and Goa campuses, has one of India's strongest university-led entrepreneurship ecosystems, with 6,400+ alumni founders and a portfolio of 800+ startups, including 17 BITSian unicorns. Its innovation infrastructure spans three Technology Business Incubators, 20 R&D centres and specialised Centres of Excellence in AI, semiconductors, national security and sustainable energy. Hyderabad is emerging as a pivotal node for semiconductor research, while Goa has built capabilities in bio-incubation, health and environmental technologies. The ecosystem is complemented by the ₹125-crore Bio-Cyber-Physical Systems Technology Innovation Hub and a strong student-alumni founder pipeline. The opportunity is to connect this substantial entrepreneurial base more systematically with BITS's research and IP, enabling the three-campus ecosystem to move beyond startup creation toward deeper technology commercialisation, IP creation and globally scaled deep-tech ventures.

AI SEMICONDUCTORS NATIONAL SECURITY
SUSTAINABLE ENERGY

FIGURES ARE INSTITUTE- OR COMPANY-REPORTED FROM PUBLIC DISCLOSURES AND LEADERSHIP CONVERSATIONS; NOT INDEPENDENTLY AUDITED.

Beyond the Core Cohort – institute profiles



IISc Bengaluru

The Indian Institute of Science is India's foremost research-intensive institution, with depth across materials, aerospace, semiconductors and nanoelectronics, computational and biological sciences. Its key differentiator is research density combined with a long-standing translation apparatus — the Society for Innovation and Development and the Foundation for Science, Innovation and Development — through which sponsored research, industry consortia and deeptech spinouts are channelled. Its position in Bengaluru gives it unusually direct access to industry partners and venture capital.

MATERIALS **AEROSPACE**

SEMICONDUCTORS

COMPUTATIONAL



IIITs

The IIITs are research-and-product oriented institutions concentrated on information technology, with IIIT Hyderabad the most visible node. Strengths sit in AI/ML, computer vision, speech and language technologies, data science, smart mobility and cognitive systems. Its differentiator is a tightly coupled research-to-product pathway: the Centre for Innovation and Entrepreneurship and iHub-Data provide incubation, applied-research programmes and industry consortia that move software and AI research towards deployable products.

AI / ML **VISION** **SPEECH**

DATA SCIENCE



NITs

The NITs form the widest engineering-education network in the country, with strengths concentrated in core engineering disciplines — materials, manufacturing, energy, civil and electrical systems — and growing capability in computing and applied AI. Nodes such as NIT Karnataka Surathkal, MNNIT Allahabad and NIT Kurukshetra appear in the national baseline. Their differentiator is regional industry linkage: incubation centres and sponsored research embedded in local industrial clusters, creating applied translation pathways.

MATERIALS **MANUFACTURING**

ENERGY **APPLIED AI**



Plaksha University

Plaksha University is a collectively founded private technology university built explicitly around interdisciplinary problem-solving rather than departmental structure, with programmes spanning AI and data science, robotics and cyber-physical systems, biological systems engineering and climate, water and energy technologies. Its differentiator is proximity to founders and industry: the university was established by a group of entrepreneurs and technology leaders, and its Technology Leaders Fellowship is designed to place research capability directly alongside venture formation.

AI & DATA **ROBOTICS**

BIO SYSTEMS **CLIMATE**

FIGURES ARE INSTITUTE- OR COMPANY-REPORTED FROM PUBLIC DISCLOSURES AND LEADERSHIP CONVERSATIONS; NOT INDEPENDENTLY AUDITED.

From Institutional Ranking to Sector Leadership

The intellectual bridge between a composite benchmark and a sector-by-sector reality.

A single institutional score tells us who has the strongest overall ecosystem. It does not tell us where India's strongest capabilities sit.

Deeptech is inherently sector-specific. An institution can be a leader in semiconductors without leading biotechnology, or lead defence translation without having the strongest overall innovation score. Research capability is not the same thing as commercialisation capability, and neither is the same thing as company-scale proof — three different questions that can point to three different institutes even within the same sector.

Sector leadership rotates: IIT Madras leads several sectors — semiconductors, electric mobility, climate technology, life sciences, space and robotics — while IIT Bombay leads biotechnology and IIT Delhi leads defence research transfer. No Indian Institute leads every field.

This is where the Deep-Tech Translation Atlas enters as the natural next question a serious reader of the core benchmark would ask: given that no institute leads every pillar, which institute leads which specific technology sector, and on what evidence

SECTOR ANALYSIS

The Deep-Tech Translation Atlas expands the lens from institutional rank to sector leadership, research networks, commercial proof and capital needs.

THREE DIFFERENT QUESTIONS

- 1 Research capability
- 2 Commercialisation capability
- 3 Company-scale proof

How to Read the Sector Lens

The sector scan that follows works differently from the ranking we spoke earlier and the difference matters

01

All Indian Institutes are considered, not just the quantified core cohort.

02

There is no numerical ranking — institutes are labelled Leader, Challenger or Third node on evidence, not score.

03

Sector leadership is research-based: a specialised lab or faculty cluster, visible research, a translation mechanism (TBI, TTO, testbed), identifiable institute-linked ventures, and evidence of licensing, pilots, orders or deployment.

04

Research capability is not commercialisation — a strong lab does not by itself mean a strong market outcome.

05

The company cases in each sector demonstrate translation; they are illustrative proof points, not a complete or statistically representative sample of the sector.

THE FIVE-QUESTION TEST

Each sector leader is tested against five questions: is there a specialised lab or durable faculty cluster; is the research visible in recent programmes, patents or demonstrators; is there a translation mechanism; are institute-linked ventures identifiable; and is there evidence of licensing, pilots, orders, deployment or scale?

*Evidence Base & Disclaimer This analysis is based on **publicly available information and evidence** identified from the sources listed at the end of the report. Coverage depends on what institutions, companies, government bodies and other credible sources have publicly disclosed. **An absence of documented evidence does not necessarily mean an absence of capability, activity or outcomes.** This is a live analysis and will be updated as additional credible evidence, institutional disclosures and new developments become available.*

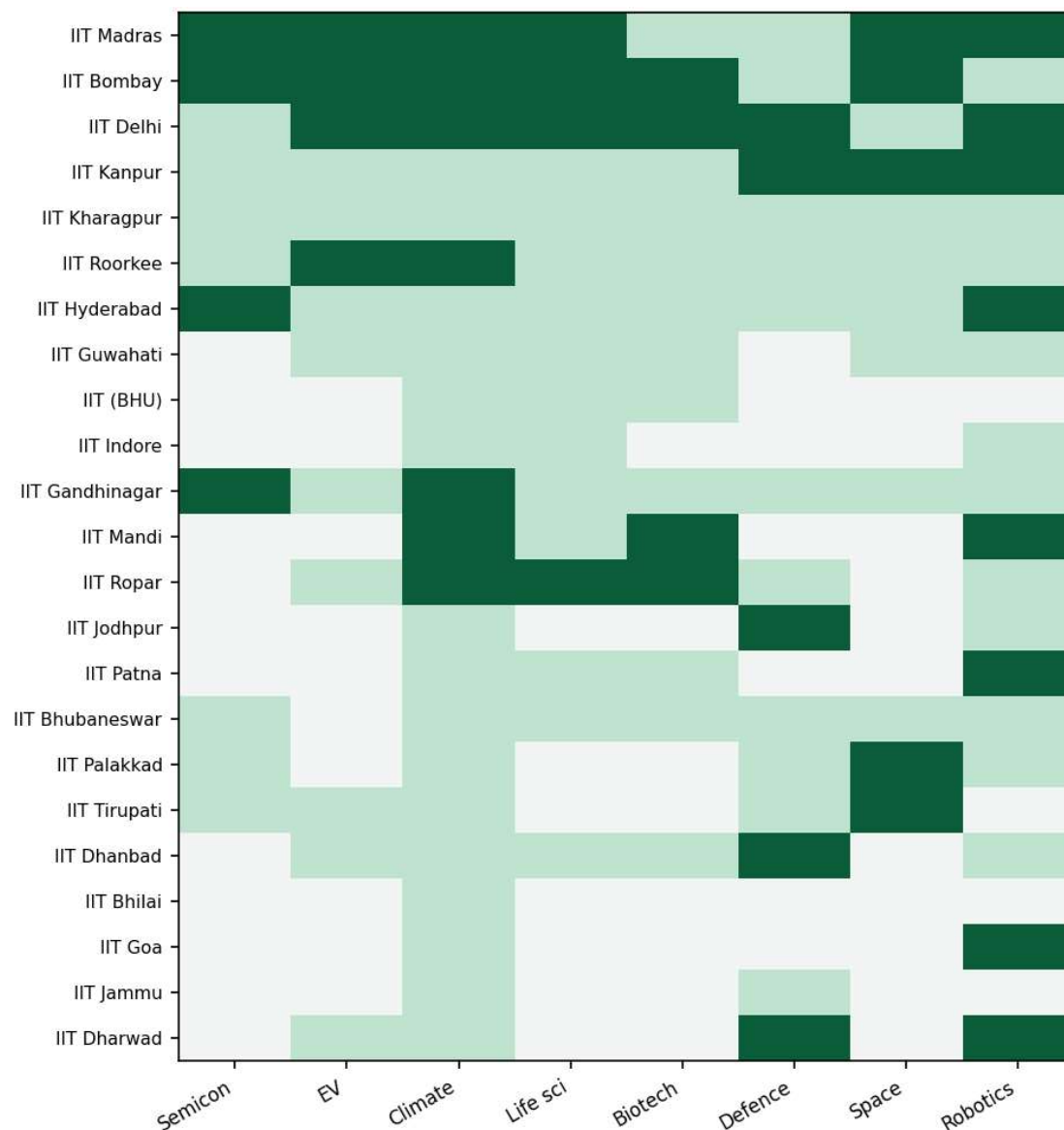
EVIDENCE-DENSITY SCAN

Evidence-Density Scan — Indian Institutes × 8 Sectors

1 = watch · 2 = emerging · 3 = established evidence cluster

-  1 — **Watch.** Limited public evidence at present.
-  2 — **Emerging.** Capability visible, translation early.
-  3 — **Established evidence cluster.** Durable lab, venture and deployment signals.

FIGURE — EVIDENCE-DENSITY SCAN ACROSS THE INDIAN INSTITUTES AND 8 SECTORS. 1=WATCH, 2=EMERGING, 3=ESTABLISHED EVIDENCE CLUSTER. [ATLAS]



EIGHT SECTOR CHAPTERS

Eight Sector Chapters

Each sector follows the same six-part template: why the sector matters, where the institute capability sits, the research-to-venture pathway, commercialisation evidence, the bottleneck

The report evaluates innovation as a translation pipeline rather than as a publication or patent contest. The unit of analysis is the observable journey from institutional capability to technology, prototype, venture or licence, customer validation and commercial scale.

EVIDENCE GRADES

GRADE	DEFINITION	USE IN REPORT
E1	Government / regulatory / exchange verified	Factual backbone; highest-confidence external milestone.
E2	Institute primary source	Research, infrastructure, technology-transfer and incubation evidence.
E3	Company primary source	Product, deployment, customer and operating claims; explicitly labelled company-reported.
E4	Reputable secondary source	Corroboration where primary evidence is unavailable or incomplete.
E5	Analytical inference	Interpretation only; never presented as an observed fact.

WHAT EACH SECTOR CHAPTER TESTS

IP

Who owns the current patent families, background IP and freedom to operate?

TECHNICAL PROOF

What sector-specific test would invalidate the current technical claim?

TEAM

Is there product engineering and entrepreneurial leadership beyond the faculty lab?

ACCESS

Are lab, sponsored-research, founder-time and conflict terms transparent?

NEXT PROOF / BUYER

What is the next external milestone, and has a customer, hospital, defence user or industrial partner defined adoption criteria?

TRANSLATION MATURITY

T0	T1	T2	T3	T4	T5	T6
Research	IP / patent / PoC	Prototype / demonstration	Startup / licence / transfer	Paid pilot / customer deployment	Repeat commercial deployment	Scaled business / major strategic outcome

HOW THE SECTOR PAGES WORK

EVIDENCE-LED SECTOR ASSESSMENT • DEEP-TECH TRANSLATION ATLAS • 2026 EDITION

01**Sector thesis**

Two to three evidence-backed statements on why the sector matters for India.

02**Institute capability map**

Capability, evidence and maturity; no forced institutional ranking.

03**Translation pipeline**

Research → IP/technology → prototype → venture/licence → customer/field trial → scale.

04**Proof points**

Company-level cards with what is established and what remains undisclosed.

05**Evidence strength**

E1–E5 classification.

06**Translation maturity**

T0–T6, assigned only to the specific milestone evidenced.

07**Sector conclusion**

Analytical judgement after the evidence.

08**Where the market is still underbuilt**

Technical, translation, capital, institutional and customer gaps.

Important discipline. A higher maturity level is assigned only where the milestone is publicly evidenced. Lack of public evidence is not treated as evidence that a technology has failed; it is recorded as an information gap.

Auditable by design. This structure is designed to make the report auditable: a reader can challenge an individual statement without having to accept a composite ranking.

01 Semiconductors

01 – SECTOR THESIS

India Semiconductor Mission and related government programmes make domestic semiconductor capability a strategic national priority; the relevant opportunity is concentrated in design, processor architecture, semiconductor devices, packaging and design-to-silicon translation. [E1/E2]

IIT Madras has a particularly strong publicly documented design-to-silicon pathway: SHAKTI is RISC-V based, has been silicon-proven, and IIT Madras/ISRO reported successful boot of an aerospace-quality SHAKTI-derived chip in 2025. [E2]

The ecosystem remains earlier-stage than mature global semiconductor clusters on repeat commercial deployments and scaled manufacturing; the investable opportunity is therefore more defensible in IP, design, verification, edge systems and enabling infrastructure than in capital-intensive fabs. [E5]

INTERPRETATION RULE

Maturity applies to the specific evidence shown, not to the institution as a whole. An Institute can have T5 evidence in one technology and T1 evidence in another.



02 – INSTITUTE CAPABILITY MAP

INSTITUTE	CAPABILITY	EVIDENCE / PLATFORM	MAT.	EVID.
IIT Madras	RISC-V processors, secure hardware, SoC design	SHAKTI; DIR-V; IITM-ISRO IRIS	T4-T5	E2
IIT Bombay	Semiconductor materials, devices, circuits, VLSI, packaging, software	SemiX	T2-T3	E2
IIT Gandhinagar	Manufacturing research, cleanroom, training, process characterisation	SAMARTH ₹190 crore hub; 1,200 m ² cleanroom; ~40 tools	T2	E2
IIT Hyderabad	Micro/nano devices, sensors, semiconductor research	EE/device research programmes	T1-T2	E2

03 – THE TRANSLATION PIPELINE

STAGE	EVIDENCE	INSTITUTE / VENTURE	MATURITY	GRADE
Research	SHAKTI RISC-V architecture	IIT Madras	—	E2
IP / Technology	Processor/IP ecosystem and DIR-V	IIT Madras / national programme	—	E2
Prototype / Silicon	SHAKTI silicon; SHAKTI-derived IRIS chip booting with ISRO	IIT Madras + ISRO	T4	E2
Venture / transfer	Mindgrove; InCore ecosystem	IITM-linked ecosystem	T3-T4	E2/E3
Customer / deployment	Public evidence of commercial IP/product activity; customer concentration not publicly established here	Companies	T3-T4	E3
Scale	Repeat silicon deployments at meaningful volume	Not established from public sources reviewed	—	—

SOURCES: S1; S2; S3; S4; S5

01 Semiconductors

04 – PROOF-POINT CARDS

Mindgrove

T3–T4 E3

IITM-linked semiconductor startup · Secure IoT / microcontroller product; public product activity

Commercial product evidence; current repeat-customer scale not independently established

InCore

T3–T4 E2/E3

Semiconductor startup · RISC-V processor IP / custom SoC capability

Commercial IP / SoC offering publicly described; current revenue and customer concentration not established

05 – EVIDENCE STRENGTH & LIMITS

E1/E2 evidence is used as the factual backbone. E3 company claims are retained only when useful and explicitly labelled. E4 is corroboration. E5 is analytical interpretation. Where a commercial metric is not publicly established, the report does not infer it.

06 – SECTOR-LEVEL CONCLUSION

What the evidence suggests: IIT Madras currently shows the broadest publicly documented semiconductor translation pathway in this four-institute set, especially from processor research to silicon and venture formation. IIT Bombay is a strong complementary node for devices, circuits and packaging; IIT Gandhinagar is rapidly building manufacturing/training infrastructure rather than yet demonstrating equivalent commercial translation.

07 – WHERE THE MARKET IS STILL UNDERBUILT

GAP

WHAT REMAINS UNDERBUILT

Technical gap

Verification, packaging, design-for-manufacture, secure edge SoCs and application-specific systems.

Translation gap

Moving institute IP from tape-out/prototype to repeat design wins and qualified production.

Capital gap

Patient capital for verification, MPW/tape-outs and customer qualification; avoid assuming fab-scale economics.

Institutional gap

Shared testing, packaging, reliability and independent silicon-diligence capacity.

Customer gap

Anchor buyers in defence, industrial, automotive and telecom willing to fund reference designs and qualification.

02 Electric Mobility

01 – SECTOR THESIS

India's EV transition has moved beyond a niche market: NITI Aayog reports EVs reached 7.7% of new vehicle sales in 2024, with more than 6.5 million EVs on Indian roads by June 2025. [\[E1\]](#)

The next innovation bottleneck is increasingly system engineering—cells, battery management, power electronics, charging, thermal management and fleet economics—rather than vehicle assembly alone. [\[E1/E5\]](#)

Academic translation is visible in mobility and powertrain ventures, but the most defensible deep-tech opportunities are component and infrastructure layers where technical validation can precede full-vehicle capital intensity. [\[E2/E5\]](#)

7.7%

OF NEW VEHICLE SALES IN
2024

6.5m+

EVS ON INDIAN ROADS BY
JUNE 2025



02 – INSTITUTE CAPABILITY MAP

INSTITUTE	CAPABILITY	EVIDENCE / PLATFORM	MAT.	EVID.
IIT Madras	EV systems, battery/charging, vehicle engineering, mobility ventures	eMobility/energy ecosystem; Ather and other IITM-linked companies	T3-T5	E2
IIT Bombay	Battery systems, cell modelling, BMS, grid integration, power electronics	DESE / EV Power Train Lab / related centres	T2-T3	E2
IIT Delhi	Battery safety, thermal systems, mobility engineering	Thermal/energy research	T1-T2	E2
IIT Roorkee	Energy storage and sustainable-energy research; incubation	Energy/TIDES ecosystem	T1-T2	E2

Interpretation rule. Maturity applies to the specific evidence shown, not to the institution as a whole.

03 – THE TRANSLATION PIPELINE

STAGE	EVIDENCE	INSTITUTE / VENTURE	MATURITY	GRADE
Research	Battery, charging, powertrain and grid integration research	IIT Madras / Bombay / Delhi	T1-T2	E2
Prototype	Battery and mobility prototypes; component validation	Multiple institute labs	T2-T3	E2
Venture	Ather and component/startup ecosystem	IIT Madras-linked ecosystem	T3-T6	E2/E3
Customer	Vehicle sales / commercial product availability for mature ventures	Company / exchange evidence	T5-T6	E1/E3
Scale	Listed or scaled businesses provide proof that institute-linked mobility can reach market scale	Ather	T6	E1/E2

SOURCES: [S6](#); [S7](#); [S8](#); [S9](#)

02 Electric Mobility

04 – PROOF-POINT CARDS

Ather Energy

T6 E1/E2

IIT Madras Research Park ecosystem · Electric two-wheelers and mobility platform

Listed on NSE/BSE in May 2025; public-market milestone is independently verifiable

Indi Energy

T3–T4 E3

Institute ecosystem / battery technology · Advanced battery materials and products

Commercial product activity publicly documented; detailed audited orders and yield economics require diligence

05 – EVIDENCE STRENGTH & LIMITS

Graded on the E1–E5 basis set out in Methodology & Evidence Standard; where a commercial metric is not publicly established, the report does not infer it.

06 – SECTOR-LEVEL CONCLUSION

Electric mobility has the clearest scale proof among the sectors reviewed, but the strongest institute investment thesis is not simply 'back EV companies'. It is to identify technically differentiated components, diagnostics, power electronics, charging and battery-life technologies that can sell into OEMs and fleets.

07 – WHERE THE MARKET IS STILL UNDERBUILT

GAP	WHAT REMAINS UNDERBUILT
Technical gap	Thermal safety, cell diagnostics, battery life extension, recycling and high-utilisation charging.
Translation gap	Independent validation and long-duration field data before OEM qualification.
Capital gap	Pilot and qualification capital is often more important than early manufacturing capex.
Institutional gap	Shared battery validation, abuse testing and field-data infrastructure.
Customer gap	Fleet operators, OEM Tier-1s and charging operators that can provide paid pilots and data access.

08 – INVESTMENT IMPLICATION

The investable unit should be the bottleneck, not the institute brand: identify technologies with a measurable customer problem, a credible translation owner, a qualification path and a financing structure matched to the sector's cycle time.

SOURCES: S6; S7; S8; S9

03 Climate Technology

01 – SECTOR THESIS

India's climate transition is becoming more binding: the Union Cabinet's 2031–35 NDC commits to a 47% reduction in emissions intensity from 2005 levels and 60% cumulative installed power capacity from non-fossil sources by 2035. [\[E1\]](#)

The investable opportunity is narrower than 'climate tech' as a category: industrial efficiency, storage, hydrogen, carbon management, water and measurable emissions-reduction systems have identifiable buyers and performance metrics. [\[E1/E2\]](#)

Institute capability is distributed across energy systems, CCUS, air quality, storage and materials; no single Indian Institute dominates every subsegment. [\[E2\]](#)

47%

EMISSIONS-INTENSITY
REDUCTION TARGET FROM
2005 LEVELS

60%

NON-FOSSIL INSTALLED
CAPACITY BY 2035



02 – INSTITUTE CAPABILITY MAP

INSTITUTE	CAPABILITY	EVIDENCE / PLATFORM	MAT.	EVID.
IIT Madras	Energy systems, storage, hydrogen, industrial efficiency	Energy Consortium / Research Park / CEET	T2-T4	E2
IIT Bombay	CCUS, direct air capture, PV, energy systems	NCoE-CCUS; NCPRE; Green Energy & Sustainability Hub	T2-T4	E2
IIT Delhi	Air quality, exposure, sustainable cities and energy	Air Quality Research Group	T1-T3	E2
IIT Mandi	Climate resilience and sustainability research	C3DAR / sustainability programmes	T1-T2	E2

Interpretation rule. Maturity applies to the specific evidence shown, not to the institution as a whole.

03 – THE TRANSLATION PIPELINE

STAGE	EVIDENCE	INSTITUTE / VENTURE	MATURITY	GRADE
Research	Hydrogen, storage, CCUS, air-quality and efficiency research	IIT Madras / Bombay / Delhi	T1-T2	E2
Technology	Patented/engineered systems and pilots	IIT Bombay and IITM ecosystems	T2-T4	E2
Venture	Chakr and other climate/industrial technology companies	Institute-linked ecosystems	T3-T5	E2/E3
Customer	Industrial installations / pilots	Company-reported or project evidence	T4-T5	E3
Scale	Repeat industrial deployment with verified savings	Selective; not uniformly established	T4-T5	E3

SOURCES: [S10](#); [S11](#); [S12](#); [S13](#)

03 Climate Technology

04 – PROOF-POINT CARDS

Chakr Innovation

T5 E3

IIT Delhi-linked climate technology ecosystem · Emission-control / clean-energy technologies

Company reports 4,000+ Chakr Shield installations and 1,000+ clients in 2024; treat as company-reported

Wankel Energy Systems

T3-T4 E3/E4

Industrial energy technology · Industrial energy system

First industrial pilot publicly reported; repeat paid deployment and savings need independent diligence

05 – EVIDENCE STRENGTH & LIMITS

Graded on the E1–E5 basis set out in Methodology & Evidence Standard; where a commercial metric is not publicly established, the report does not infer it.

06 – SECTOR-LEVEL CONCLUSION

What the evidence suggests: Climate technology should be treated as a portfolio of measurable industrial problems, not a single sector winner. IIT Bombay has unusual CCUS depth; IIT Madras has broad energy/translation infrastructure; IIT Delhi has strong air-quality and deployment-relevant research.

07 – WHERE THE MARKET IS STILL UNDERBUILT

GAP	WHAT REMAINS UNDERBUILT
Technical gap	Systems that deliver measurable emissions reduction without relying on uncertain carbon-credit economics.
Translation gap	Independent measurement & verification and industrial uptime evidence.
Capital gap	Pilot-to-commercial capital and project-finance structures.
Institutional gap	Field instrumentation, M&V standards and shared demonstration sites.
Customer gap	Cement, steel, food processing, data centres, utilities and real estate buyers.

SOURCES: S10; S11; S12; S13

04 Life Sciences & Medtech

01 – SECTOR THESIS

India's medtech opportunity is fundamentally a translation problem: clinical need must move through engineering, validation, regulatory approval, procurement and service—not merely a lab prototype. [E2/E5]

IIT Madras R2D2 and IIT Bombay BETIC provide unusually visible examples of this full-stack model. BETIC reports 25 devices, 16 startups and 14 licensed products; R2D2 reports technology transfers to industrial partners including NeoMotion. [E2]

The commercial bottleneck is therefore not invention alone; it is clinical evidence, regulatory execution, reimbursement/procurement and service networks. [E5]

25

DEVICES

16

STARTUPS

14

LICENSED
PRODUCTS



02 – INSTITUTE CAPABILITY MAP

INSTITUTE	CAPABILITY	EVIDENCE / PLATFORM	MAT.	EVID.
IIT Madras	Assistive devices, rehabilitation, diagnostics and medtech translation	R2D2; HTIC; Research Park	T3-T5	E2
IIT Bombay	Clinical-need-led device development and licensing	BETIC / DSSE / BSBE	T3-T5	E2
IIT Delhi	Biomedical engineering and hospital-adjacent research	CBME / FITT ecosystem	T1-T3	E2
IIT Jodhpur	Digital health, AI and low-cost devices	Digital-health/medtech initiatives	T1-T2	E2

Interpretation rule. Maturity applies to the specific evidence shown, not to the institution as a whole.

03 – THE TRANSLATION PIPELINE

STAGE	EVIDENCE	INSTITUTE / VENTURE	MATURITY	GRADE
Clinical need	R2D2/BETIC explicitly engage users/clinicians	IITM / IITB	T1	E2
Prototype	Devices developed and validated through engineering/clinical workflows	BETIC / R2D2	T2-T3	E2
Transfer / venture	Licensing and startup formation	BETIC; R2D2; HTIC	T3	E2
Commercial product	NeoMotion and other products available in market	Company / institute sources	T4-T5	E2/E3
Scale	Repeat procurement and service footprint	Case-specific; requires diligence	T4-T5	E3/E4

SOURCES: S14; S15; S16; S17

04 Life Sciences & Medtech

04 – PROOF-POINT CARDS

NeoMotion

T4-T5 E2/E3

IIT Madras R2D2 spinout/technology-transfer ecosystem · Assistive mobility products

IIT Madras states R2D2 transferred technology to NeoMotion; company-scale user numbers should be treated as company-reported unless independently corroborated

BETIC portfolio

T5 platform E2

IIT Bombay institute-led translation platform · Medical devices and licensing

25 devices, 16 startups, 14 licensed products reported by IIT Bombay

05 – EVIDENCE STRENGTH & LIMITS

Graded on the E1-E5 basis set out in Methodology & Evidence Standard; where a commercial metric is not publicly established, the report does not infer it.

06 – SECTOR-LEVEL CONCLUSION

What the evidence suggests: IIT Madras and IIT Bombay both demonstrate credible medtech translation, but through different strengths. IIT Madras is strong in assistive/rehabilitation and integrated incubation; IIT Bombay's BETIC is especially strong in systematic clinical-need identification, device development, startups and licensing.

07 – WHERE THE MARKET IS STILL UNDERBUILT

GAP	WHAT REMAINS UNDERBUILT
Technical gap	Affordable clinical validation, usability and manufacturing design.
Translation gap	Protocol design, regulatory documentation and hospital workflow integration.
Capital gap	Regulatory/clinical milestone capital before institutional procurement.
Institutional gap	Shared clinical coordinators, biostatistics, regulatory and quality-system expertise.
Customer gap	Hospitals, public health systems, distributors and export-market partners.

SOURCES: S14; S15; S16; S17

05 Biotechnology

DEEP-TECH TRANSLATION ATLAS • 2026 EDITION

01 — SECTOR THESIS

India's biotechnology priority is now explicit in policy: the Union Cabinet approved the BioE3 Policy for high-performance biomanufacturing, placing biomanufacturing and bio-based production within the national technology agenda. [E1]

Institutional capability is concentrated where wet-lab research sits alongside a dedicated translation mechanism. IIT Madras operates a dedicated Bioincubator covering translation, scale-up and commercialisation, and reports incubated and graduated companies. [E2]

Company-scale proof exists but is concentrated: within this report's dataset, IIT Bombay is the biotech outcome leader, while the clearest regulatory milestone in the reviewed evidence is ImmunoACT's NexCAR19 CDSCO approval. [E3/E4]

INTERPRETATION RULE

Maturity applies to the specific evidence shown, not to the institution as a whole. An Institute can have T5 evidence in one technology and T1 evidence in another.

02 — INSTITUTE CAPABILITY MAP

INSTITUTE	CAPABILITY	EVIDENCE / PLATFORM	MAT.	EVID.
IIT Bombay	Biosciences and bioengineering; clinical-need-led device and therapeutic translation	BSBE / DSSE / BETIC; SINE	T3-T5	E2
IIT Madras	Bio-translation, scale-up and commercialisation of biotech ventures	IIT Madras Bioincubator; Research Park	T3-T4	E2
IIT Delhi	Biomedical engineering and hospital-adjacent research	CBME / FITT ecosystem	T1-T3	E2
IIT Jodhpur	Biotech alongside digital health and low-cost devices	Digital-health / medtech initiatives	T1-T2	E2

THE EVIDENCE BASE FOR THIS SECTOR

E1

Government-verified policy pull

The BioE3 Policy for high-performance biomanufacturing was approved at Cabinet level, making biomanufacturing a stated national priority rather than an inferred trend.

E2

Institute translation platform

A dedicated bioincubator covering translation, scale-up and commercialisation, with incubated and graduated companies reported by the institute itself.

E3/E4

Company regulatory milestone

A CAR-T therapy approval reported in secondary biotech press — the clearest market-facing milestone in the reviewed evidence, and the only one at that maturity.

05 Biotechnology — Proof & Investability

DEEP-TECH TRANSLATION ATLAS • 2026 EDITION

03 — THE TRANSLATION PIPELINE

STAGE	EVIDENCE	INSTITUTE / VENTURE	MATURITY	GRADE
Policy pull	BioE3 Policy approved for high-performance biomanufacturing	Government of India	—	E1
Research	Biosciences, bioengineering and bio-process research	IIT Bombay / IIT Madras	T1-T2	E2
Translation platform	Dedicated bioincubation covering translation and scale-up	IIT Madras Bioincubator	T3	E2
Venture	Incubated and graduated companies reported by the platform	Institute-linked ecosystem	T3-T4	E2
Regulatory milestone	NexCAR19 CDSCO approval reported	ImmunoACT	T5	E3/E4
Scale	Repeat commercial manufacture and sustained supply	Not established from public sources reviewed	—	—

04 — PROOF POINT

ImmunoACT — NexCAR19

T5 E3/E4

IIT Bombay-linked biotech ecosystem • CAR-T cell therapy

CDSCO approval reported in secondary biotech press; manufacturing volumes, pricing and repeat supply are not independently established here

05 — Evidence strength & limits. Graded on the E1–E5 basis set out in Methodology & Evidence Standard; where a commercial metric is not publicly established, the report does not infer it.

06 — SECTOR-LEVEL CONCLUSION

Biotechnology has clear policy pull and a credible institutional translation platform, but company-scale proof in the reviewed evidence rests on a small number of milestones. The sector should be read as high-potential and early, not yet repeatable.

07 — WHERE THE MARKET IS STILL UNDERBUILT

GAP	WHAT REMAINS UNDERBUILT
Technical gap	Process development, bio-manufacturing scale-up and quality systems.
Translation gap	Regulatory execution, clinical evidence and GMP-grade production access.
Capital gap	Long-horizon capital across preclinical, clinical and qualification stages.
Institutional gap	Shared bio-manufacturing, characterisation and regulatory expertise.
Customer gap	Hospitals, public health systems and pharma partners able to adopt at volume.

SOURCES: S18; S19; S20; S21

06 Defence Technology

01 – SECTOR THESIS

India's defence production reached a record ₹1.78 lakh crore in FY2025–26, while the private sector's contribution reached about ₹42,000 crore; this materially expands the addressable procurement base for indigenous technology. [\[E1\]](#)

Institute capability is strongest where defence needs overlap with dual-use technologies: materials, drones, sensing, autonomy, secure systems and advanced manufacturing. [\[E2\]](#)

Commercial leadership and research leadership are not identical: IIT Delhi shows strong defence research translation, while IIT Bombay provides an unusually visible company-scale outcome through ideaForge and, in 2026, SEDEMAC's IPO milestone. [\[E2\]](#)

₹1.78 lakh cr

DEFENCE PRODUCTION,
FY2025–26

₹42,000 cr

PRIVATE-SECTOR
CONTRIBUTION



02 – INSTITUTE CAPABILITY MAP

INSTITUTE	CAPABILITY	EVIDENCE / PLATFORM	MAT.	EVID.
IIT Delhi	Defence materials, sensing, advanced textiles and dual-use research	DRDO Industry-Academia CoE	T3-T4	E2
IIT Kanpur	Advanced materials, defence incubation, aerospace/robotics	DIA-CoE / SIIC ecosystem	T2-T4	E2
IIT Bombay	Aerospace, drones, power electronics and defence startups	SINE / aerospace ecosystem; ideaForge	T4-T6	E2
IIT Madras	Aviation, space, sensing and applied defence innovation	Agnishodh / research-park ecosystem	T2-T4	E2

Interpretation rule. Maturity applies to the specific evidence shown, not to the institution as a whole.

03 – THE TRANSLATION PIPELINE

STAGE	EVIDENCE	INSTITUTE / VENTURE	MATURITY	GRADE
Research	Materials, sensing, autonomy, aerospace	Multiple Indian Institutes	T1-T3	E2
Prototype / user trial	Defence demonstrators and qualification	DIA-CoE / industry partners	T2-T4	E2
Venture	ideaForge; SEDEMAC as adjacent dual-use proof	IIT Bombay ecosystem	T4-T6	E2
Procurement	Military contracts / qualified products	Case-specific	T4-T6	E1/E3
Scale	Listed or strategic industrial outcome	ideaForge / SEDEMAC	T6	E1/E2

SOURCES: [S22](#); [S23](#); [S24](#); [S25](#); [S26](#)

06 Defence Technology

04 – PROOF-POINT CARDS

ideaForge

T6 E2

IIT Bombay alumni / SINE ecosystem • Unmanned aerial systems
IIT Bombay documents founding at SINE; company became publicly listed

SEDEMAC

T6 E2

IIT Bombay SINE faculty-led startup • Powertrain electronics / industrial control
IIT Bombay reported IPO milestone in March 2026 and traced origin to faculty research

05 – EVIDENCE STRENGTH & LIMITS

Graded on the E1–E5 basis set out in Methodology & Evidence Standard; where a commercial metric is not publicly established, the report does not infer it.

06 – SECTOR-LEVEL CONCLUSION

What the evidence suggests: Defence should be evaluated through procurement and qualification milestones rather than startup counts. IIT Delhi has strong research-translation infrastructure; IIT Bombay has the strongest visible company-scale proof in the reviewed set.

07 – WHERE THE MARKET IS STILL UNDERBUILT

GAP	WHAT REMAINS UNDERBUILT
Technical gap	Ruggedisation, secure communications, counter-UAS, advanced sensing and manufacturing yield.
Translation gap	User trials, qualification and integration into existing platforms.
Capital gap	Working capital and long procurement-cycle financing.
Institutional gap	Independent testing, certification and export-control expertise.
Customer gap	Armed forces, DPSUs, system integrators and export customers.

SOURCES: S22; S23; S24; S25; S26

07 Space Technology

01 – SECTOR THESIS

Indian Space Policy 2023 explicitly opened the space value chain to non-government entities and established a framework for private participation, procurement and commercial space activity. [E1]

IIT Madras has a particularly strong launch/propulsion translation pathway: IIT Madras-incubated Agnikul conducted a successful technology-demonstration launch on 30 May 2024 using an indigenous 3D-printed engine. [E1]

The strongest venture thesis is not limited to launch vehicles: propulsion, sensors, onboard computing, materials, ground software and space-derived data can have shorter qualification and revenue cycles. [E5]

Interpretation rule. Maturity applies to the specific evidence shown, not to the institution as a whole.



02 – INSTITUTE CAPABILITY MAP

INSTITUTE	CAPABILITY	EVIDENCE / PLATFORM	MAT.	EVID.
IIT Madras	Propulsion, combustion, aerospace, additive manufacturing	NCCRD / aerospace group; Agnikul	T4-T6 in cases	E1/E2
IIT Bombay	Aerospace, materials and green propulsion	Aerospace/materials/SINE ecosystem	T2-T4	E2
IIT Kanpur	Space science, aerospace systems, multidisciplinary research	SPASE / aerospace ecosystem	T1-T3	E2
IIT Tirupati	GNSS, geospatial, navigation and sensing	Navigation/geospatial labs	T1-T2	E2

03 – THE TRANSLATION PIPELINE

STAGE	EVIDENCE	INSTITUTE / VENTURE	MATURITY	GRADE
Research	Propulsion, combustion, materials, navigation	IIT Madras / Bombay / Kanpur / Tirupati	T1-T3	E2
Prototype	Engine and subsystem demonstrations	NCCRD / startups	T2-T4	E2/E3
Flight demonstration	Agnibaan SOrTeD	Agnikul	T5	E1
Commercialisation	Launch / subsystem / data products	Case-specific	T4-T5	E1/E3
Scale	Recurring launch cadence and contracted payload pipeline	Not yet established at mature scale from reviewed evidence	T4-T5	E3/E5

SOURCES: S27; S28; S29; S30

07 Space Technology

04 – PROOF-POINT CARDS

Agnikul Cosmos

T5 E1

IIT Madras-incubated space startup · Agnibaan launch vehicle / 3D-printed engine

PIB records successful 30 May 2024 technology-demonstration launch

Manastu Space

T3-T4 E3

Space-tech venture · Space-tested propulsion / in-orbit systems

Company claims should be independently verified at diligence stage; not used as a core proof point here

05 – EVIDENCE STRENGTH & LIMITS

Graded on the E1–E5 basis set out in Methodology & Evidence Standard; where a commercial metric is not publicly established, the report does not infer it.

06 – SECTOR-LEVEL CONCLUSION

What the evidence suggests: IIT Madras has the strongest complete public pathway in launch/propulsion among the four nodes reviewed. The broader investment opportunity is in subsystems and services where qualification can create defensible IP without launch-vehicle-level capital intensity.

07 – WHERE THE MARKET IS STILL UNDERBUILT

GAP	WHAT REMAINS UNDERBUILT
Technical gap	High-reliability components, propulsion manufacturing, thermal systems and onboard computing.
Translation gap	Qualification, flight heritage and repeat mission cadence.
Capital gap	Long qualification cycles and hardware working capital.
Institutional gap	Shared vacuum, vibration, propulsion and mission-testing access.
Customer gap	Hosted-payload operators, constellation companies, government users and international buyers.

SOURCES: S27; S28; S29; S30

08 Robotics

01 – SECTOR THESIS

Robotics becomes commercially compelling when it addresses hazardous, repetitive or inspection-heavy work where safety, labour scarcity or downtime creates a measurable economic buyer. [E3/E5]

IIT Madras has a strong translation history in field robotics and underwater/utility inspection, while IIT Delhi and IIT Kanpur provide complementary autonomy and robotics research capabilities. [E2]

Commercial evidence is stronger in industrial and infrastructure robotics than in general-purpose humanoids; the near-term thesis should therefore prioritise inspection, sanitation, underwater systems and specialised automation. [E2/E3]

Interpretation rule. Maturity applies to the specific evidence shown, not to the institution as a whole.



02 – INSTITUTE CAPABILITY MAP

INSTITUTE	CAPABILITY	EVIDENCE / PLATFORM	MAT.	EVID.
IIT Madras	Pipeline, sewer, underwater and field robotics	CNDE / Solinas / Planys ecosystem	T4-T6	E2/E3
IIT Delhi	Cobotics, drones, medical robotics and autonomy	IHFC	T2-T4	E2
IIT Kanpur	Legged systems, autonomy and robotics research	Robotics group / SIIC	T1-T3	E2
IIT Jodhpur	Constrained/remote robotics and space applications	Mechanical/space robotics	T1-T2	E2

03 – THE TRANSLATION PIPELINE

STAGE	EVIDENCE	INSTITUTE / VENTURE	MATURITY	GRADE
Research	Field, underwater, medical and autonomous robotics	IIT Madras / Delhi / Kanpur	T1-T3	E2
Prototype	Robots validated in constrained environments	CNDE / IHFC / startups	T2-T4	E2/E3
Deployment	Solinas inspection and Planys underwater systems	IITM-linked companies	T4-T5	E2/E3
Repeat commercial	20,000+ operational hours reported by Planys; multi-city Solinas deployments	Company-reported	T5	E3
Scale	Repeat service contracts and global channels	Case-specific	T4-T5	E3/E4

SOURCES: S31; S32; S33; S34

08 Robotics – Proof & Investability

04 – PROOF-POINT CARDS

Solinas Integrity

T4-T5 E3

IIT Madras-linked robotics company · Water/sewer inspection, cleaning and digitisation

Company documents multi-city infrastructure deployment; current contract economics require diligence

Planys Technologies

T5 E3/E4

IIT Madras-originated underwater robotics company · ROVs, AUVs and underwater inspection

Company reports 20,000+ operational hours; 2025 secondary reporting describes global deployments and ₹100 crore expansion financing. Both are company-reported or secondary and require independent verification at diligence stage

05 – EVIDENCE STRENGTH & LIMITS

Graded on the E1-E5 basis set out in Methodology & Evidence Standard; where a commercial metric is not publicly established, the report does not infer it.

06 – SECTOR-LEVEL CONCLUSION

What the evidence suggests: Robotics is most defensible where the machine is replacing unsafe work or reducing costly downtime. IIT Madras has the strongest visible industrial deployment pathway in the reviewed set; IIT Delhi and IIT Kanpur remain important research and autonomy nodes.

07 – WHERE THE MARKET IS STILL UNDERBUILT

GAP

WHAT REMAINS UNDERBUILT

Technical gap

Reliability, perception in unstructured environments, ruggedisation and maintenance.

Translation gap

Testbeds, safety validation and integration with customer workflows.

Capital gap

Hardware working capital before recurring service revenue stabilises.

Institutional gap

Open test environments and shared safety/qualification infrastructure.

Customer gap

Utilities, oil & gas, municipalities, warehouses, defence and infrastructure owners.

SOURCES: S31; S32; S33; S34

Key Findings

01 - 02

01 India has built a substantial innovation base; the bottleneck is increasingly translation

The Indian Institutes ecosystem already combines significant research, IP, entrepreneurship, infrastructure and venture creation capacity. Across the quantified cohort (10 IITs), the Index records 3,139 IIT-background founder startups, 10,420 patent filings, 5,450 patent grants, 1,069 commercialisation outcomes and 717 major scale/outcome events.

The implication is important: India's principal innovation challenge is no longer simply generating research, patents or founders. It is moving more of those assets through the full chain — research → IP → prototype → venture/licence → customer validation → commercial scale. The report's sector evidence repeatedly points to this conversion layer as the decisive determinant of impact.

3,139

FOUNDER
STARTUPS

10,420

PATENT
FILINGS

5,450

PATENT
GRANTS

1,069

COMMERCIALISATION

717

SCALE
EVENTS

02 Innovation leadership is multidimensional, not concentrated in a single institutional winner

Across the full set of 31 institutions assessed in the Index, no single institution emerges as the clear leader across every dimension of innovation-to-impact. Strengths are distributed across research, talent, funding, infrastructure, intellectual property, startups, industry engagement and commercial outcomes, with different institutions demonstrating distinctive advantages.

The sector analysis reinforces this finding. Across semiconductors, clean energy and batteries, robotics, AI-ML, quantum, space and defence, and healthcare, leadership is distributed across the broader institutional ecosystem. The strongest institution varies by technology domain, reflecting differences in faculty expertise, specialised infrastructure, research depth, industry partnerships and the maturity of translation pathways.

The implication is important: institutional rank should not be treated as a proxy for technology leadership. For India's innovation strategy, the more useful question is increasingly: **which of the 31 institutions has the strongest capability in a particular technology, what evidence supports that strength, how far has that capability translated into startups, IP, pilots, deployment or scale, and where do the remaining gaps constrain innovation-to-impact?**

Leadership rotates by sector. Institutional rank is not a proxy for technology leadership.

Key Findings (continued)

03 - 04

03 India's deeptech capability is becoming distributed and specialised

The Deep-Tech Translation Atlas shows that deeptech capability is no longer confined to the three traditional leaders. IIT Madras, IIT Bombay and IIT Delhi retain broad-based portfolios, while emerging institutions are developing differentiated strengths in areas such as semiconductors, space, materials, energy, healthtech, agritech, AI/ML, robotics and advanced industrial technologies.

Examples include IIT Gandhinagar in semiconductor manufacturing research, IIT Tirupati in space and geospatial technologies, IIT Ropar in agritech and climate, IIT Palakkad in intelligent systems and semiconductors, IIT Jodhpur in AI, defence, biotech and robotics, and IIT (ISM) Dhanbad in mining and critical-mineral technologies.

The opportunity is therefore becoming distributed rather than purely concentrated: the next generation of Indian technology companies can emerge from specialised nodes across the Indian Institutes system and, increasingly, beyond it.

04 Capital is more concentrated than entrepreneurial activity

The ecosystem is producing founders more broadly than capital is being deployed. The top three Indian Institutes account for approximately 58% of the startup-creation measure but 67% of the funding measure in the quantified cohort.

58%

OF STARTUP CREATION IN THE TOP THREE

67%

OF FUNDING IN THE TOP THREE

This indicates a capital-concentration premium around the most established ecosystems. It does not imply that emerging Indian Institutes lack quality; rather, it suggests that access to networks, repeat founders, institutional reputation, investors and demonstrated exits continues to influence where capital accumulates.

For emerging institutions, the challenge is therefore not simply to create more startups. It is to build the proof, networks and financing pathways that allow promising companies to attract institutional capital and progress beyond the earliest stages.

Key Findings (continued)

05 The strongest opportunity is to convert existing capability into repeatable market outcomes

The evidence does not point to an absence of successful translation. There are clear examples across mobility, medtech, semiconductors, climate technology and other sectors.

For example, IIT Madras' R2D2 has transferred technologies into industrial and startup pathways including NeoMotion, while IIT Bombay's BETIC reports 25 devices developed, 16 startups incubated and 14 products licensed to or developed for industry partners. In semiconductors, IIT Madras and ISRO have demonstrated a SHAKTI-based aerospace-quality chip, showing that institutional research can progress into silicon and strategic applications.

THE REAL IMPLICATION

The significance of these cases is not that India lacks success stories. It is that success is not yet sufficiently repeatable across the system.

The next phase of India's innovation journey is therefore about making translation a system capability rather than relying on exceptional institutions, faculty champions or individual companies

The Key Gaps

GAP 01 – 02

01 The research-to-market conversion gap

India has a strong upstream innovation base, but the pathway from research → IP → prototype → startup/licence → customer → scale remains uneven.

The Index records 10,420 patent filings against 1,069 commercialisation outcomes in the quantified cohort. This is not a patent-conversion ratio – the measures have different definitions and vintages – but it is a clear directional signal that the volume of technology creation is substantially larger than the visible pool of commercialisation outcomes. The report therefore identifies conversion, rather than capability creation, as the central system challenge.



WHAT IS MISSING

Stronger technology-transfer processes, founder pathways, proof-of-concept funding, product engineering, customer validation and mechanisms that take promising IP beyond the laboratory.

02 The activation gap: infrastructure exists, but access and utilisation are uneven

India has built a substantial layer of incubators, Technology Innovation Hubs, Centres of Excellence, research parks and specialised laboratories. The problem is increasingly not whether these assets exist, but whether they are consistently accessible and connected to ventures attempting to commercialise technology.

The report's original analysis captures this precisely: activation is a more useful diagnosis than simply calling for more infrastructure. Existing laboratories, IP, industry relationships and institutional platforms need to become usable assets for entrepreneurs.

WHAT IS MISSING

Transparent access rules, founder-friendly IP and licensing structures, shared testing facilities, product-development support, industry connectivity and accountable technology-transfer ownership.

The Key Gaps

GAP 03 - 04

03 The deeptech capital gap is about structure, not only volume

Deeptech ventures often require capital across a longer sequence of PoC → prototype → technology-readiness advancement → qualification → first customer → scale than conventional software or asset-light businesses.

India's policy architecture increasingly recognises this problem. The National Deep Tech Startup Policy framework explicitly proposes mechanisms including a Deep Tech Fund of Funds and unified grant support, while the National Quantum Mission is designed to support scientific and industrial R&D and scale-up over a multi-year horizon.

The gap is therefore not simply "more venture capital". It is appropriately structured patient capital that can absorb technical risk before a company reaches conventional venture milestones.

WHAT IS MISSING

Translational grants, PoC capital, milestone-based financing, specialised deeptech funds, strategic corporate capital and financing mechanisms for qualification and first-of-a-kind deployment.

04 The customer and adoption gap remains a critical bottleneck

A technically validated technology is not yet a commercial product. Across sectors, the final transition requires anchor customers, procurement pathways, regulatory approval, field validation and repeat deployment.

This is particularly evident in semiconductors, medtech, defence, climate technology and space, where qualification cycles are long and buyers are concentrated. The Atlas therefore identifies customer access, procurement and sector-specific validation as recurring constraints rather than treating funding alone as the answer.

WHAT IS MISSING

Structured corporate pilots, government procurement pathways, hospital and clinical validation, defence/industrial testbeds, anchor customers and mechanisms that convert pilots into repeat orders.

PoC

›

Prototype

›

Qualify

›

1st
customer

›

Scale

05 The ecosystem remains institutionally fragmented

India's strongest capabilities are increasingly distributed across institutions, but researchers, IP, founders, capital, industry and infrastructure still largely operate within institutional boundaries.

The Indian Institutes scan demonstrates why this matters: one Institute may have the research capability, another the specialised equipment, another the clinical or industrial connection, and another the entrepreneurial or funding network. The opportunity is to connect these complementary assets rather than expect every institution to build a complete innovation stack independently.

WHAT IS MISSING

Cross-institution research consortia, shared infrastructure, interoperable IP and licensing frameworks, co-incubation, cross-campus founder networks, joint industry programmes and capital platforms that can underwrite technologies irrespective of their originating institution.

THE CENTRAL DIAGNOSIS

India does not primarily have an innovation-creation problem. It has a translation-and-scale problem.

The country has built significant research capability, IP generation, entrepreneurial talent and innovation infrastructure. The next step is to make the system better at connecting these assets — and repeatedly moving technologies from lab to IP, IP to prototype, prototype to customer, and customer validation to scale.

THE INDEX THEREFORE POINTS TOWARDS A SHIFT IN FOCUS

From more research	→	to more translation
From more infrastructure	→	to better activation
From more capital	→	to better-structured capital
From more pilots	→	to repeat adoption
From individual institutional excellence	→	to connected national innovation networks

The Road Ahead

The IvyCap Action Layer

India does not lack research capability, technical talent or entrepreneurial potential. Its academic and research institutions generate significant research, intellectual property and technical talent, while an expanding innovation and startup ecosystem is increasingly capable of converting these capabilities into new ventures. The larger challenge is connecting these assets into a consistent pathway from research to IP, IP to commercialisation, and commercialisation to scalable companies. The Innovation to Impact Index makes this opportunity visible by identifying where institutional capabilities are strong and where gaps remain across research, entrepreneurship, infrastructure, industry engagement and capital.

IvyCap is building the connective layer through the Super Endowment between India's academic and research institutions, entrepreneurial talent, industry and capital—helping translate institutional innovation and entrepreneurial potential into investable and scalable outcomes.

THE ENDOWMENT MODEL

Turning Giveback into Institutional Capability

IvyCap's Endowment model represents the foundation of this approach. An endowment creates a long-term pool of capital that can provide sustained support to an institution's priorities rather than funding only one-time interventions.

THE ENDOWMENT MODEL

The Endowment Model

2019

INDIA'S FIRST UNIVERSITY ENDOWMENT, AT IIT DELHI

₹1,000 cr

PROPOSED SUPER ENDOWMENT

IvyCap pioneered this model within India's academic ecosystem by creating India's first Institute endowment at IIT Delhi in 2019. The model channels a portion of IvyCap's fund-manager profits back to academic institutions, creating a mechanism through which the success of the investment ecosystem can flow back into the institutions that help create India's talent, research and entrepreneurial base.

The Funds has since been deployed across institutions including IIT Kanpur, IIT Bombay, IIT Madras, IITBHU and IIT Roorkee, supporting activities such as prototypes, early-stage technology startups, research and entrepreneurship.

THE PRINCIPLE IS SIMPLE

Capital created through the ecosystem goes back into the ecosystem to create the next generation of research, innovators and entrepreneurs.

The Endowment therefore represents more than philanthropy. It is a mechanism for reinvesting capital, expertise and networks into the academic institutions that contribute to India's next generation of innovation.

From Endowments to the Super Endowment

The Super Endowment represents the next evolution of this model—from institution-level giveback to ecosystem-scale innovation infrastructure. The proposed initial ₹1,000 crore Super Endowment is designed to aggregate and strategically deploy philanthropic and institutional capital across academic institutions, with an emphasis on research, innovation, intellectual property creation, technology translation and entrepreneurship.

Building the IvyCap Innovation Flywheel

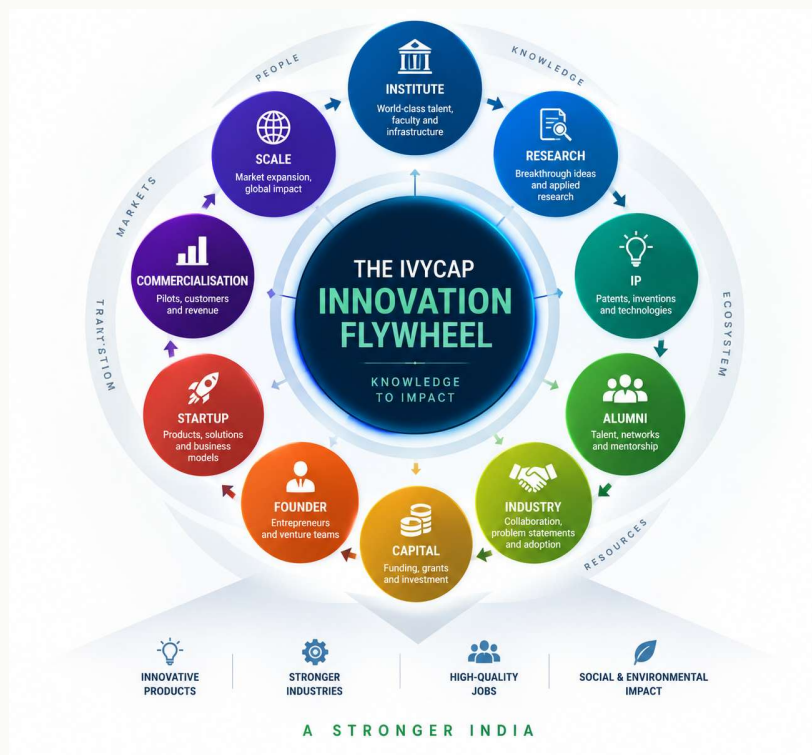
The larger opportunity is to connect these capital mechanisms with IvyCap's broader ecosystem. Academic and research institutions provide research, talent and IP; alumni contribute expertise, mentorship, networks and capital; corporates provide industry problems, validation, pilots and potential customers; patient capital supports technology translation; and venture capital enables commercially viable companies to scale.

- **Institutions** — research, talent, IP
- **Alumni** — expertise, mentorship, networks, capital
- **Corporates** — problems, validation, pilots, customers
- **Patient capital** — technology translation
- **Venture capital** — scale

THE IVYCAP INNOVATION FLYWHEEL

Together, these elements create an IvyCap Innovation Flywheel

KNOWLEDGE TO IMPACT



The objective is to ensure that promising research does not remain confined to a paper, patent or prototype because the next layer of expertise, capital or market access is missing. Where appropriate, institutional IP can move towards licensing or spinouts; where a founder opportunity exists, it can become a startup; where a corporate problem aligns with institutional capability, it can move towards a pilot and eventual adoption; and where a company demonstrates venture potential, it can access growth capital and markets.

This ensures that the Index becomes a trigger for engagement rather than an annual ranking exercise.

THE VISION

Making India the IP Capital of the World

Turning Research, Development & Innovation into Commercializable Assets

The vision is to build the connective infrastructure that enables India's academic and research institutions, talent, capital and industry to work as one innovation system—moving ideas from research and IP to commercialisation, company creation and global scale. The Endowment and Super Endowment provide the capital architecture for this journey, while the Innovation to

Impact Index provides the intelligence to identify where capabilities exist and where intervention can unlock greater impact.

The vision is to build an ecosystem where Indian research creates globally relevant IP, entrepreneurs turn that IP into companies, industry takes it to market, and capital enables it to scale globally—positioning India as the IP capital of the world.

Closing Message

From IvyCap Leadership



Dr Anju Gupta's Words

Partner, IvyCap Ventures

There has never been any question about India being a powerhouse of research and innovation. The gap has been our ability to translate this into economic value. Now, more than ever, with India on the path to 'Viksit Bharat', there is an urgency to translate our research, innovation, and development into commercializable assets and to do this in a scalable and sustainable way. One that is not one-size-fits-all, but customized to our academic innovation ecosystems – from the nascent ones that need capacity building to our robust ecosystems that need amplification.

The index we have built is not simply a ranking based on passive data; it is built on outcomes, which in turn helps us identify gaps where effort and resources need to be focused to complement existing work and achieve the desired outcomes. The index helps us identify collaboration opportunities because the scale of what we aim to accomplish can only be achieved through the power of the whole – collaborating research, resources, talent, and markets. This is the foundation of our Superendowment model, which multiplies the abilities of individual academic ecosystems through aggregated capital, institute collaboration, industry networks, and expertise to enable translation of our IP into economic value at scale and solve our big problems.

CLOSING
THESIS

The next frontier is not simply creating more innovation inside India's campuses. It is building the pathways that allow more of that innovation to reach the world.

GLOSSARY

Glossary

Key terms used in the report

TERM	WORKING DEFINITION FOR THIS REPORT
Alumni Startup	A company associated with a founder whose educational background includes the relevant Institute, as represented in the supplied dataset.
Commercialisation	The process of moving an institutional technology or IP towards a market-facing outcome; the ranking uses the supplied commercialisation measure.
Deeptech	Technology-intensive innovation requiring substantial scientific or engineering development; in this Index, operationalised through patent and commercialisation indicators plus sector mapping.
Innovation Infrastructure	The incubator, technology hub and CoE ecosystem used in the supplied ranking framework.
IP / IPR	Intellectual property / intellectual property rights.
Research-to-Market	The pathway from research and IP creation to licensing, startup/spinout, partnership, adoption or other commercial outcome.
Scale & Outcomes	The supplied measure combining unicorns, soonicorns, decacorns, acquisitions, IPOs and related outcome fields.
Spinout	A new venture created around technology or IP originating from an institution or research organisation.
TRL	Technology Readiness Level; a framework for describing the maturity of a technology from early research to deployment.

TERM	WORKING DEFINITION FOR THIS REPORT
Technology Transfer	The process through which knowledge, IP or technology moves from an institution to another entity for development or use.
TBI	Technology Business Incubator.
TIH	Technology Innovation Hub.
Venture Creation	The process of turning technology, research or founder capability into a startup or investable company.
Composite Score	The single weighted score (0–100) combining all five pillars — Startup Creation, Funding, Innovation Infrastructure, Scale & Outcomes and Research Impact — used to rank institutes in this edition.
Valley of Death	The gap between technology creation and commercialisation in which promising IP or prototypes stall for lack of funding, industry validation or entrepreneurial talent to carry them to market.

ACRONYMS

Acronyms

Reference list

ACRONYM	MEANING
AI/ML	Artificial Intelligence / Machine Learning
BHU	Banaras Hindu University
CoE	Centre of Excellence
IP	Intellectual Property
IPR	Intellectual Property Rights
IIT	Indian Institute of Technology
IPO	Initial Public Offering
PoC	Proof of Concept
R&D	Research & Development
TBI	Technology Business Incubator
TIH	Technology Innovation Hub
TRL	Technology Readiness Level
VC	Venture Capital
TTO	Technology Transfer Office
ANRF	Anusandhan National Research Foundation
CCUS	Carbon Capture, Utilisation and Storage
M&V	Measurement and Verification
MPW	Multi-Project Wafer
GNSS	Global Navigation Satellite System

ACRONYM	MEANING
BITS	Birla Institute of Technology and Science
CSR	Corporate Social Responsibility
CVC	Corporate Venture Capital
DPIIT	Department for Promotion of Industry and Internal Trade
DST	Department of Science and Technology
ESDM	Electronics System Design and Manufacturing
HCI	Human-Computer Interaction
IIM	Indian Institute of Management
IISc	Indian Institute of Science
IISER	Indian Institute of Science Education and Research
MeitY	Ministry of Electronics and Information Technology
NIRF	National Institutional Ranking Framework
ROV	Remotely Operated Vehicle
UAV	Unmanned Aerial Vehicle
NMCP	National Mission on Cyber-Physical Systems
RDI	Research, Development and Innovation
SIDBI	Small Industries Development Bank of India
DPSU	Defence Public Sector Undertaking

SOURCES & REFERENCES

Sources & References

What the Index uses

STARTUP & FUNDING DATABASE

Tracxn Technologies Limited — licensed startup, funding and outcome data (see Disclaimer, next page). tracxn.com

Metrics sheet: the source of the raw ranking inputs, normalised scores, composite score and rank. Link [Link](#)

Raw Numbers sheet: detailed raw measures for startup creation, funding, scale outcomes, incubator funding and patent/commercialisation inputs. Link [Link](#)

LongList sheet: company-level evidence base for the startup/outcome universe used in the dataset. Link [Link](#)

Dragon Metric sheet: alumni-founded companies and investor/fund-impact context. Link [Link](#)

GOVERNMENT & PUBLIC POLICY SOURCES

Department for Promotion of Industry and Internal Trade (DPIIT), Government of India · Department of Science and Technology (DST) · Ministry of Electronics and Information Technology (MeitY) · India Semiconductor Mission · National Quantum Mission

INSTITUTIONAL SOURCES

Annual reports, incubator disclosures and technology-transfer office records for IIT Madras, IIT Bombay, IIT Delhi, IIT Kanpur, IIT Kharagpur, IIT Roorkee, IIT Guwahati, IIT Hyderabad, IIT Indore and IIT (BHU) Varanasi.

Institute websites for SINE, IITMIC, FITT, SIIC, IHFC, STEP, BioNest, TIDES, iTIC, i3F and other named incubators, including C3iHub, AI4ICPS, TIH IIT Roorkee, TiHAN, ACE Foundation IIT Indore, Drishti CPS and IDAPT Hub.

PRESS & SECONDARY SOURCES

Economic Times, Business Standard, Entrackr, YourStory and LiveMint (fund-return case studies).

EVIDENCE PRINCIPLE

Where the attached materials do not contain an approved direct quotation, this report does not invent one. Institutional inputs are presented as mapped focus areas or interview-derived themes.

ADDITIONAL SOURCES

Additional Sources Identified

(not yet in register above) — the following links appeared in the underlying data workbook but weren't captured in the source-register categories above

SOURCE	REFERENCE
PIB Press Release — IIT Madras funding coverage	pib.gov.in
Startup Grants India — FITT IIT Delhi profile	startupgrantsindia.com
IIT Kanpur — CoE Search tool	iitk.ac.in
GrowthGurukul — SIIC IIT Kanpur overview	growthgurukul.in
Tracxn — STEP IIT Kharagpur profile	tracxn.com

SOURCE	REFERENCE
IIT Roorkee — Centres index	iitr.ac.in
IIT Hyderabad — Research Centres page	iith.ac.in
IITG TIDF — Official site	iitgtidf.com
Turtlemint — Scribd, Blume Ventures / India Quotient fund performance	scribd.com
Director-level and institutional leadership conversations conducted by the IvyCap team, 2025–2026.	—

PUBLIC REFERENCES

nirfindia.org/Rankings/2025/InnovationRanking.html · nirfindia.org/Rankings/2025/ResearchRanking.html

Primary sources are prioritised. URLs are included so every material statement can be independently checked. Source labels in the sector pages correspond to this register.

SOURCE REGISTER

Source Register S1 – S17

ID	SOURCE	URL
S1	IIT Madras & ISRO: SHAKTI-based aerospace-quality semiconductor chip (2025)	www.iitm.ac.in/happenings/press-releases-and-coverages/iit-madras-isro-jointly-developed-and-successfully-booted
S2	IIT Madras: SHAKTI RISC-V silicon proof / R&D Fair	www.iitm.ac.in/happenings/press-releases-and-coverages/iit-madras-showcases-cutting-edge-projects-iits-rd-fair-0
S3	IIT Bombay: SemiX Centre for Semiconductor Technologies	www.iitb.ac.in/research-centres
S4	IIT Gandhinagar: SAMARTH Semiconductor Hub, ₹190 crore	news.iitgn.ac.in/advancing-semiconductor-education-training/
S5	IIT Madras: Technology Transfer — patents, technologies and incubation	www.iitm.ac.in/innovation/technology-transfer
S6	NITI Aayog: Electric Vehicles in India — \$200B opportunity (2025)	www.niti.gov.in/node/1772
S7	NITI Aayog: India Electric Mobility Index / EV adoption data	www.niti.gov.in/node/1771
S8	IIT Madras Research Park: startups and ecosystem	respark.iitm.ac.in/startups
S9	IIT Bombay: SEDEMAC IPO milestone / research-origin startup	www.iitb.ac.in/breaking-news/sedemac-mechatronics-pvt-ltd-first-its-kind-faculty-led-deep-tech-startup-india
S10	PIB: India's 2031–35 NDC and climate targets (2026)	www.pib.gov.in/newsite/erelcontent.aspx?lang=2&reg=48&relid=286866
S11	IIT Bombay: National Centre of Excellence in CCUS	www.iitb.ac.in/research-centres
S12	IIT Bombay: 2026 CCUS collaboration and direct-air-capture evidence	www.iitb.ac.in/breaking-news/iit-bombay-strengthens-india-canada-collaboration-carbon-capture
S13	Chakr Innovation: 4,000+ installations and 1,000+ clients — company-reported	chakr.in/about-us/
S14	IIT Bombay BETIC: 25 devices, 16 startups, 14 licensed products	www.dsse.iitb.ac.in/about
S15	IIT Madras R2D2: technology transfer and products	www.iitm.ac.in/research/research-centres/ttk-center-rehabilitation-research-and-device-development-r2d2
S16	IIT Madras R2D2: innovation portfolio	r2d2.iitm.ac.in/innovations
S17	IIT Madras HTIC / medtech ecosystem — institute source	www.iitm.ac.in/research/research-centres/ttk-center-rehabilitation-research-and-device-development-r2d2

SOURCE REGISTER

Source Register S18 – S34

ID	SOURCE	URL
S18	PIB: BioE3 Policy approved for high-performance biomanufacturing	www.pib.gov.in/PressReleaseFramePage.aspx?PRID=2048569&lang=1&reg=3
S19	IIT Madras Bioincubator: translation, scale-up and commercialization	bioincubator.iitm.ac.in/
S20	IIT Madras Bioincubator: incubated and graduated companies	bioincubator.iitm.ac.in/incubation.php
S21	BioSpectrum: ImmunoACT NexCAR19 CDSCO approval report	www.biospectrumindia.com/
S22	PIB: Defence production reaches ₹1.78 lakh crore in FY2025–26	www.pib.gov.in/PressReleasePage.aspx?PRID=2273824&lang=1&reg=3
S23	IIT Bombay: ideaForge alumni / SINE origin	acr.iitbombay.org/ideaforge-iit-bombay-alumni-drone-company-goes-public-and-becomes-the-7th-largest-drone-company-in-the-world/
S24	IIT Bombay: SEDEMAC IPO milestone	www.iitb.ac.in/breaking-news/sedemac-mechatronics-pvt-ltd-first-its-kind-faculty-led-deep-tech-startup-india
S25	IIT Bombay: Research Park / SINE ecosystem and graduate startups	www.ee.iitb.ac.in/~bh/pages/articles/Aspire-IIT-Bombay-Research-Park.html
S26	PIB: Defence Atmanirbharta production and exports	www.pib.gov.in/PressReleasePage.aspx?PRID=2191937&lang=2&reg=3
S27	IN-SPACe: Indian Space Policy 2023	www.inspace.gov.in/sys_attachment.do?sys_id=0cab9667871286d03b0f0d060cbb358c
S28	PIB: Agnikul launches rocket with 3D-printed engine, 30 May 2024	www.pib.gov.in/PressReleaseFramePage.aspx?PRID=2022161
S29	Reuters: Agnikul technology-demonstration launch, 30 May 2024	www.reuters.com/world/india/indian-space-startup-agnikul-launches-countrys-second-privately-built-rocket-2024-05-30/
S30	IIT Madras Research Park: ecosystem and defence/technology infrastructure	respark.iitm.ac.in/about-us/
S31	Solinas: robotics for water and sanitation infrastructure	solinas.in/
S32	Planys: underwater robotics and 20,000+ operational hours — company-reported	planystech.com/
S33	Planys: company history / IIT Madras origin	planystech.com/about-us/
S34	IIT Madras Research Park: incubated startups including Planys	respark.iitm.ac.in/startups

RESEARCH NOTE

This report was rebuilt from the supplied working draft and expanded with external primary/secondary research available as of 20–25 August 2026. Claims that could not be independently substantiated were either removed, qualified, or moved into the 'what remains undisclosed' category.

REFERENCE MATERIAL

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WITH THANKS

This report would not have been possible without the openness and time of many people and institutions:

- 01 Data contributors and licensed database partners, including Tracxn Technologies Limited
- 02 Institute leadership and directorate offices who participated in institutional conversations
- 03 Institute innovation, incubation and technology-transfer teams who helped in shared portfolio and patent data
- 04 The IvyCap leadership team, for championing this research as a public contribution to India's innovation ecosystem

Disclaimer

Important information on use of the Index

Purpose of the Index

This Index is published for informational and research purposes only. It is intended to support institutional benchmarking and ecosystem understanding, and does not constitute an evaluation of any individual, faculty member, or student.

Data Limitations

As detailed in the Methodology, data completeness varies by institute and metric. Readers should interpret rankings and scores in light of the methodological limitations set out in that section.

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The scoring methodology in this report reflects choices made by IvyCap's research team and represents one reasonable approach among several; readers seeking a different weighting or definition are encouraged to consult the Data Tables to construct their own analysis.

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Where this report relies on publicly available or institutionally disclosed data, IvyCap has made reasonable efforts to verify accuracy but cannot guarantee the completeness or continued accuracy of third-party disclosures.

Future Editions

Methodology, scope and institutional cohort may change in future editions, as described in The Road Ahead section. Comparisons across editions should account for such changes.

THIRD-PARTY DATA LICENSING

Alumni/Founder/Faculty data on startup, funding and outcome data in this report for 10 IITs is sourced under license from Tracxn Technologies Limited. Such data may not be redistributed, republished, or reproduced in substantial part without Tracxn's prior written consent; this report incorporates only insubstantial extracts for internal analysis and stakeholder communication, with Tracxn credited as the source throughout.

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