

NEW FRONTIERS

ENGINEERING

WHAT COMES NEXT

ANNUAL REPORT 2025-26



For me to see the innovation, the patents, the creativity and when we speak about New India and what is changing, the idea that we have it in us to do more than we are doing, this is the real-life validation that I am seeing.

- Dr. S. Jaishankar,
Minister of External Affairs,
Government of India on his visit to
IIT Madras Research Park (2026)



Table of Contents

01 Introduction

03 At a Glance

04 From the Desk of Our Chairman

05 From the Desk of Our Group CEO

07 From the Desk of Our Professor-in-Charge

09 Board of Directors

12 Strategic Developments

12 | School of Semiconductors

13 | India Deep Tech Accelerator

14 | Frontier Capital

17

Frontier Technologies

18 | Sovereign AI

19 | Aerospace & Defence

23 | Semiconductors

25 | Health & Biotech

27 | EV & Mobility

29

Faculty Driving Innovation

31

Year In Review

38

Corporate Events & Visits

41

In the News

The background image shows a modern building with a glass facade and a rooftop garden. The garden features large, light-colored planters with various green plants and a wooden pergola structure. The text is overlaid on a yellow background that spans across the middle of the image.

**Technology
leadership is
being rewritten
in real time.**



Technology leadership is being rewritten in real time. The next decade will not be defined by incremental progress, but by those bold enough to build at the edge — in artificial intelligence, semiconductors, aerospace, quantum technologies, advanced manufacturing, climate tech, and beyond. Nations are racing to secure technological sovereignty. Industries are being rebuilt from the ground up. The rules of innovation have changed.

At IIT Madras Research Park (IITMRP), we are building the infrastructure for this future. A place where breakthrough science meets entrepreneurial ambition, where deep-tech startups work alongside global industry and where ideas move faster from lab to market than ever before.

Over the past year, IITMRP has accelerated its position as a launchpad for India's next generation of deep-tech startups and burgeoning frontier deep-tech ecosystem - enabling the next generation of innovation through strategic initiatives such as the IIT Madras Unicorn Frontier Fund I, establishing new Centres of Excellence, enabling industry collaborations and strategic translational research partnerships across critical technology sectors.

The work happening here is driven by one belief: India must not just participate in the future of technology - it must lead it.



AI



Semiconductors



Aerospace



Defence



Energy



Biotech



Advanced Systems Engineering

The future will belong to builders.
To risk-takers.
To institutions willing to think beyond convention.

That future is being built here.
At IIT Madras Research Park

At a Glance

India's Deep-Tech Momentum, At Scale



1.2

Million Sq. Ft. of Collaborative Workspace



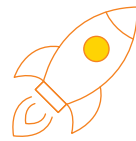
6000+

Technologists Co-creating Value



11.2

Acre Campus



580+

Startups



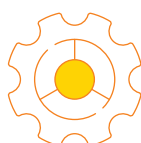
250+

Research-focused Organisations & Labs



\$8.5

Billion+ Valuation



17+

Sectors



700+

Patents Filed



17

Centres of Excellence



13,000

Jobs Created

From the Desk of our **Chairman**



Professor V Kamakoti

At IIT Madras, we have long believed that research institutions must play a larger role in nation-building — not only by advancing knowledge, but by creating the ecosystems that enable ideas to translate into real-world impact. IIT Madras Research Park was envisioned with this very purpose: to bring academia, industry, startups, government, and capital onto a common platform to accelerate innovation with relevance and scale.

Over the past year, this vision has continued to gather momentum. IIT Madras achieved the 'Startup Shatam' milestone for the second consecutive year, incubating 112 startups and expanding its portfolio to 580+ ventures collectively valued at over ₹81,000 crore. The IPO of Ather Energy and the filing of 431 patents in FY 2025–26 further reflect the growing maturity of the Institute's innovation ecosystem and its commitment to translating research into deployable technologies and globally competitive enterprises.

This year also marked an important step forward with the launch of the IITM Unicorn Frontier Fund I — a strategic initiative designed to support deep-tech startups as they navigate the challenging journey from research to commercialization. By enabling long-term capital support for frontier technologies, the fund strengthens our ability to help innovators cross the critical "Valley of Death Hope" that often separates breakthrough science from scalable impact.

As Chairman of IIT Madras Research Park, I see IITMRP playing an increasingly important role in shaping India's frontier innovation landscape. The institution today stands not merely as a research park, but as a national platform for deep-tech collaboration, strategic capability building, and technology-led growth.

The future will belong to nations that invest deeply in research, innovation, and entrepreneurship with conviction and continuity. IIT Madras and IITMRP remain committed to contributing meaningfully to that future with ambition, purpose, and a steadfast belief in India's potential to lead.

With optimism & conviction,

Prof. V. Kamakoti,

Director, IIT Madras,
Chairman, Board of Directors,
IITM Research Park

From the Desk of our **Group CEO**



Natarajan Malupillai

“The future will belong to nations that can build sovereign capability across frontier technologies. Our role is to help create the ecosystems that make that future possible.”

This year was an especially meaningful milestone for all of us at IIT Madras Research Park as we celebrated 20 years since our founding. It offered us an opportunity not only to reflect on how far we have come, but also to reaffirm the ambition that continues to drive us forward.

Twenty years ago, IITMRP pioneered a new model for innovation in India — one that believed breakthrough technologies emerge when unlike minds come together. At a time when industry, academia, startups, and research largely operated in silos, we set out to build an ecosystem where collaboration could accelerate the journey from research to real-world impact.

Today, that vision has evolved into one of India's most dynamic deep-tech innovation ecosystems, home to over 250 R&D organisations and labs,

580+ startups, 17 Centres of Excellence, 5 incubators and 6000+ technologists shaping the future across sectors. We are immensely proud of what this ecosystem has achieved over the past two decades: enabling translational research, nurturing deep-tech startups and creating platforms that continue to strengthen India's innovation capabilities.

As we enter the next phase, we recognise that the nature of innovation itself is changing. Across the world, nations are reorganising themselves around frontier technologies. These are no longer just emerging sectors; they are becoming central to economic resilience, technological sovereignty, and long-term national competitiveness.

India stands at a powerful inflection point in this transition. With its scale, talent, entrepreneurial

momentum, digital infrastructure and policy support, the country has the opportunity not just to participate in the next technology wave, but to help define it. The focus is shifting from adopting technology to creating indigenous capabilities, critical intellectual property, resilient supply chains and globally competitive products and platforms from India.

At IITMRP, we have been leading this shift. Over the past year, we have deepened our focus on frontier sectors including Aerospace & Defence, Semiconductors, Sovereign AI, EV & Mobility, Quantum Technologies, HealthTech, and Sustainability.

One of the most visible examples of this momentum can be seen in the space sector. Following India's landmark decision to open up and liberalize the space ecosystem, we have witnessed a new generation of private space ventures emerging from our ecosystem. Startups such as Agnikul Cosmos, known for developing the world's first single-piece 3D-printed rocket engine and preparing for commercial launches, and GalaxEye, which is building the world's first OptoSAR satellite capable of combining optical and synthetic aperture radar imaging, demonstrate the depth of innovation being created in India. Alongside them, a growing cohort of companies including Inbound Aerospace, Daloft Aerospace, SatLabs, EON Space Labs, and others are advancing capabilities across launch systems, satellite technologies, space intelligence, and aerospace engineering.

One of our proudest milestones this year was the launch of the IITM Unicorn Frontier Fund - I — an important step toward strengthening patient capital access for deep-tech startups building long-gestation, research-intensive technologies. We believe science and technology will play a defining role in India's journey toward Viksit Bharat 2047, particularly across AI, semiconductors, defence technologies, quantum systems and advanced manufacturing. Supporting indigenous innovation in these areas is not only an economic imperative, but a strategic one.

This year also saw important ecosystem partnerships that reflect our long-term direction. Through strategic collaborations with the Government of Tamil Nadu, we are setting up the Centre for Advanced Semiconductor Technologies (CoAS).

As India's innovation ecosystem matures, the conversation must also expand beyond individual institutions and companies. We eagerly contribute to the evolution of similar ecosystems across the country by engaging with academic institutions, research parks, incubators and state-led innovation initiatives to share best practices and mentor them.

Looking ahead, our priorities remain clear. We will continue expanding infrastructure aligned with the ecosystem's next phase of growth, strengthen capital access for deeptech startups, deepen industry engagement and accelerate the translation of research into globally competitive technologies and enterprises.

To all our partners — academic, corporate, entrepreneurial, governmental, and civic — I extend my sincere gratitude for your trust and continued belief in our shared mission. I would also like to thank the Government of India and the Government of Tamil Nadu for their steadfast support in strengthening India's innovation and technology ecosystem.

The frontier is no longer somewhere ahead of us. It is already being built.

And twenty years in, we are still building forward.

Warm regards,

Natarajan Malupillai,

Group CEO,
IITM Research Park,
Incubation Cell,
Rural Technology and Business Incubator

From the Desk of our
Professor-in-Charge



Prof. Radhakrishna G Pillai

“As India’s innovation ambitions continue to grow, IITMRP’s next phase is focused on building the infrastructure and collaborative ecosystems needed to support them at scale.”

I congratulate all the stakeholders in the IIT Madras Research Park (IITMRP) ecosystem for their efforts in identifying various R&D needs, innovating, collaborating with unlike minds, and delivering meaningful products across sectors to meet various national challenges. With such active efforts in place, I feel proud to state that IITMRP today operates at nearly 99% occupancy across its ecosystem — reflecting the growing demand for high-quality R&D and collaborative innovation spaces.

As the innovation landscape continues to evolve, so too must the ecosystems that support it. The next generation of deep-tech research demands not only world-class talent, but also purpose-built infrastructure that enables interdisciplinary collaboration, advanced R&D, and faster translation of ideas into real-world solutions. Preparing for this future has been one of our key priorities over the past year.

To meet this demand and support the next phase of growth, IITMRP has taken on the ambitious challenge of initiating its Phase 3 construction comprising six new buildings with nearly 12 Lakhs sq. ft. of additional innovation infrastructure. We plan to start the construction in Q2 FY 2026-27 and make this space available for use within 12-18 months. As part of this, we are also able to setup a Centre for Advanced Research – sincere thanks to the ICICI Foundation for a generous grant via IIT Madras. Hereby, I also express my sincere thanks to my friends in IIT Madras and IITMRP for their relentless support and for bringing innovative ideas for the Phase 3 construction.

Considering the large size of the campus we have (with sophisticated and intricate facilities and systems), it is not an easy task to maintain all the facilities. Even with such challenges, our team has worked hard and improved our existing facilities to serve the ecosystem better. This progress is reflected in stronger client satisfaction and responsiveness across the campus experience, driven by the dedicated efforts of our campus administration and maintenance teams.

On another note, last year, we witnessed numerous visits by eminent personalities and delegations from government, academia, and industries from within India and abroad, reflecting the growing stature and influence of the IITMRP ecosystem. This recognition is rooted in the collective strength of the IIT Madras community (including its faculty, students, alumni, industry partners, startups, and friends) and all the existing clients at IITMRP.

Alongside these efforts, we continue to attract and enable stakeholders across relatively less-represented cohorts, to accelerate long-term national growth. I have received excellent feedback on the collaborations, visits and our hospitality – thanks to the research collaboration and marketing teams for their excellent efforts.

Finally, I thank the entire staff at the Corporate Office of IITMRP for their sincere efforts towards serving a world-class research, development, and innovation ecosystem; and, with Phase 3 in the making, getting ready to serve a larger ecosystem in future.

Jai Hind.

Prof. Radhakrishna G. Pillai,

Professor-in-Charge,
IITM Research Park,
Professor, Department of
Civil Engineering, IIT Madras

Board of Directors



Prof. V. Kamakoti

Director, IIT Madras,
Chairman, Board of Directors,
IITM Research Park



Natarajan Malupillai

Group CEO,
IITM Research Park,
Incubation Cell,
Rural Technology and
Business Incubator



Prof. Radhakrishna G. Pillai

Professor In-charge,
IITM Research Park,
Professor, Department of
Civil Engineering, IIT Madras



Kris Gopalakrishnan

Co-founder, Infosys



M.M. Murugappan

Chairman,
Carborundum Universal Limited
(CUMI)



B. Santhanam

Former CEO, Saint-Gobain
Asia Pacific and India Region &
Chairman, Saint-Gobain India

Board of Directors



Gopal Srinivasan

Chairman &
Managing Director,
TVS Capital Funds



Prof. Manu Santhanam

Dean,
IC&SR, IIT Madras



S. Mahalingam

Former Chief Financial Officer
& Executive Director,
Tata Consultancy Services



Dr. Atul Anand, IAS

Additional Chief Secretary
to Government,
Information Technology and
Digital Services Department,
Government of Tamil Nadu



Dr. S. Vijayakumar, IAS

Additional Chief Secretary
to Government,
Industries, Investment Promotion &
Commerce Department,
Government of Tamil Nadu



Dr. K.S. Palanisamy, IAS

Secretary to Government,
Revenue and Disaster
Management Department,
Government of Tamil Nadu



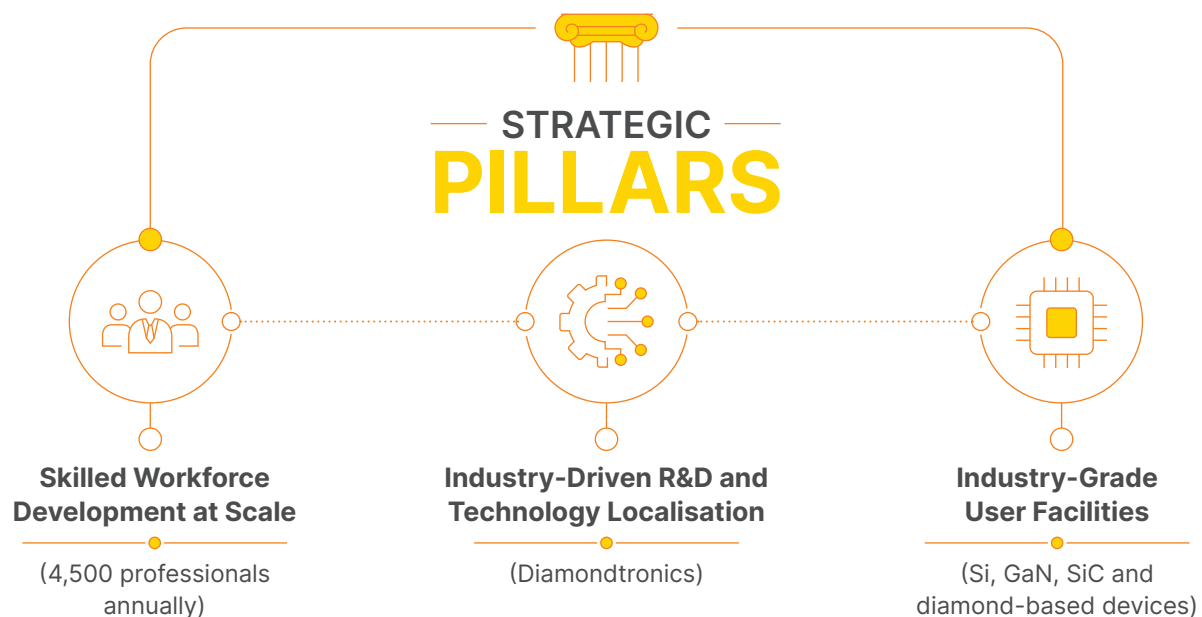
Building India's technological sovereignty, from the ground up.

The first chapter of the IITMRP story, laying the groundwork for the frontier and strategic technologies emerging today.

Building India's Semiconductor Future

With the global semiconductor industry projected to cross **USD 1 trillion by 2030**, this moment represents an opportunity for India to build technological sovereignty, strengthen supply-chain resilience and move decisively up the global value chain. IIT Madras Research Park, in collaboration with the Government of Tamil Nadu is leading the development of a **Centre for Advanced Semiconductor Technologies (CoAS)**, a unified “chip-to-systems” platform designed to integrate fabrication, packaging, testing, applied research and industry-driven innovation.

The vision for CoAS is to build a globally competitive, self-sustaining semiconductor ecosystem in Tamil Nadu that anchors technology development, workforce creation and manufacturing growth.



Global Pathways for Frontier Innovation



At IIT Madras Research Park, we believe India's deep-tech founders have the potential to shape global industries. Enabling that journey from breakthrough research to global market access remains central to our vision.

In line with this, IITMRP partnered with the Polsky Center for Entrepreneurship and Innovation at the University of Chicago, through the India Deep Tech Alliance, to launch the India Deep Tech Accelerator, marking another step towards connecting India's frontier technologies with global innovation ecosystems.

Ceratattva Innotech

Advanced ceramic materials and coatings for high-temperature, high-performance industrial applications.

Folium Sensing

Fiber-optic sensing platform delivering real-time, predictive monitoring for critical infrastructure like pipelines and railways.

Our startups in the inaugural cohort of the India Deep Tech Accelerator

Frontier Capital for **Deep-Tech**

Backing India's Next Technology Leap

The launch of the **IITM Unicorn Frontier Fund I** marks a significant step in strengthening India's deep-tech innovation ecosystem. Launched by IIT Madras Research Park in partnership with Unicorn India Ventures, the ₹600 crore fund is designed to support IP-led, engineering-intensive startups working across frontier sectors such as semiconductors, AI, defence, aerospace, robotics, climate technologies, and advanced manufacturing.

Focused on long-gestation deep-tech ventures, the fund provides patient capital to help startups navigate the critical journey from research and prototyping to commercialisation and scale. By backing technologies aligned with India's strategic priorities, the fund reinforces IITMRP's larger vision of accelerating frontier innovation with national and global impact.

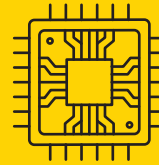
Fund **Snapshot**



Frontier Sectors



AI



Semiconductors



Defence



SpaceTech



ClimateTech



Robotics



MedTech



Quantum



This fund will accelerate the scale-up of mission-driven, globally competitive startups while strengthening India's culture of innovation & entrepreneurship

- Natarajan Malupillai,
Group CEO, IITM Research Park,
Incubation Cell & Rural Technology
and Business Incubator



Launch of the IITM Unicorn Frontier Fund I

The image features a central graphic with the text "FRONTIER TECHNOLOGIES" in a bold, dark grey sans-serif font. Surrounding this central text are five technology sectors, each represented by a yellow dot with a thin orange outline. These dots are interconnected by thin orange lines, forming a network. The sectors are: "AEROSPACE & DEFENCE" at the top right, "HEALTH & BIOTECH" at the bottom right, "EV & MOBILITY" at the bottom center, "SEMICONDUCTORS" at the bottom left, and "SOVEREIGN AI" at the top left. The background consists of large, overlapping, semi-transparent circles in shades of orange and yellow, creating a dynamic, abstract feel.

FRONTIER TECHNOLOGIES

AEROSPACE & DEFENCE

SOVEREIGN AI

HEALTH & BIOTECH

SEMICONDUCTORS

EV & MOBILITY

Building AI for India, From India

Artificial Intelligence is rapidly becoming foundational to economic growth, public infrastructure, and national competitiveness. As countries race to build sovereign AI capabilities, India's opportunity lies not only in developing frontier models, but in building AI systems that reflect the country's languages, contexts and scale.

sarvam

Founded: 2023
Foundation Models, AI Infrastructure &
Enterprise AI Applications



MoU signing with Govt. of TN to establish India's first full-stack Sovereign AI Park in Chennai



Sarvam AI team

Core Technology

- Building India's full-stack Sovereign AI platform spanning models, infrastructure, and applications trained on Indian languages, code-mixed communication patterns and context-specific datasets.

India Sector Landscape

- India's AI opportunity is being shaped by its linguistic diversity, large-scale digital public infrastructure, and growing demand for AI systems tailored to local contexts.

Positioning

- Sarvam is building frontier-class AI models designed specifically for India's linguistic and socio-economic realities.
- Its work builds on foundational research from AI4Bharat and focuses on making AI more accessible, culturally relevant, and deployable at scale.

Key Milestone

- Partnered with the Government of Tamil Nadu and IIT Madras to develop Digital Sangam — India's first full-stack Sovereign AI Park integrating compute infrastructure, AI research, startup incubation and AI governance capabilities within a single ecosystem.



*The goal isn't to make everyone speak the same language.
It's to make language differences irrelevant to understanding*
- Dr. Pratyush Kumar, Co-founder, Sarvam AI

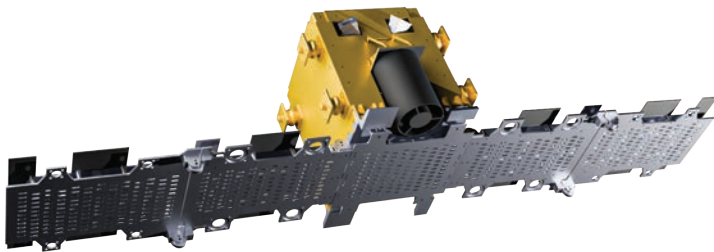


Driving India's Sovereign Aerospace & Defence Capabilities

India's aerospace and defence sector is entering a new phase of indigenous innovation, driven by growing investments in space technologies, autonomous systems, advanced aerospace engineering, and strategic infrastructure. As the country strengthens its focus on technological self-reliance, deep-tech startups are playing an increasingly important role in shaping the next generation of aerospace and defence capabilities.



Incubated: 2021
Earth Observation Payloads &
Space Intelligence Systems



"Drishti" - the world's first OptoSAR satellite



View of Earth at an altitude of 517 km

Core Technology

- Developing "SyncFused OptoSAR" — a multi-sensor imaging platform integrating Synthetic Aperture Radar (SAR) and optical imaging within a single payload. This enables high-resolution, all-weather, day-and-night Earth observation from space.

India Sector Landscape

- India's Earth observation ecosystem is witnessing rapid growth driven by IN-SPACe reforms, private sector participation, and increasing demand for sovereign geospatial intelligence.
- The next phase of growth will depend on indigenous payload technologies that reduce dependence on foreign satellite imagery and sensing infrastructure.

Positioning

- GalaxEye is building indigenous multi-sensor payload systems that enable continuous, high-reliability Earth observation for defence, disaster response, agriculture, and infrastructure monitoring.
- Its integrated SAR-optical architecture reduces latency, improves operational reliability, and strengthens India's sovereign intelligence capability.

Key Milestone

- Completed Mission Drishti flight model assembly and testing at ISRO-URSC, secured a defence analytics contract with a premier Indian defence and intelligence agency and became the first private company to sign an imagery reseller agreement with NewSpace India Limited (NSIL).



Incubated: 2019
Urban Air Mobility (UAM) &
eVTOL Aircraft Systems



The ePlane Co. eVTOL fleet

Core Technology

- Building the e200x — India's first electric air taxi platform designed for high-density urban environments. Developing a full-stack indigenous eVTOL platform spanning airframe design, propulsion systems, flight controls, avionics, and autonomy.

India Sector Landscape

- India's aerospace ecosystem is entering a new phase driven by indigenous manufacturing, evolving eVTOL regulations, and growing investment in sovereign aerospace technologies.
- The emergence of private aerospace startups across propulsion, autonomy, avionics, and advanced aircraft systems is accelerating the development of a domestic aerospace supply chain.

Positioning

- ePlane is building India's sovereign Urban Air Mobility capability through compact, infrastructure-light eVTOL systems designed specifically for dense urban markets.
- The company is among the first in India to actively shape regulatory pathways for next-generation electric aviation platforms while reducing dependence on imported aerospace technologies.

Key Milestone

- Inaugurated a 60,000 sq. ft. engineering and prototyping facility at the IIT Madras Discovery Campus, completed the Ground Test Vehicle (PT1), and received DGCA acceptance for its Type Certification application.
- Established strategic partnerships with NVIDIA for Omniverse-based digital twin simulations and Hensoldt for integrating military-grade advanced avionics.

Advancing India's Strategic Deep-Tech Capabilities

India's strategic technology ecosystem is witnessing rapid growth across AI, cybersecurity, semiconductors, intelligent systems and digital infrastructure driven by national initiatives and indigenous semiconductor and defence programs. As the country strengthens its focus on technological sovereignty and secure digital infrastructure, Centres of Excellence like IITM Pravartak are playing a critical role in bridging research, productization, and deployment across strategic sectors.



Founded: 2020



MoU signing with Software Technology Parks of India (STPI)

Focus Areas: Sensors • Networking • AI/ML • Cybersecurity • Databases • Embedded Systems

Strategic Focus: Developing indigenous, scalable, and secure technologies for strategic and industrial applications.

Flagship Projects

- **ShaktiDB:** An indigenous secure database platform designed for strategic and enterprise applications, reducing dependence on foreign database technologies.
- **AI-Powered Knowledge Repository for CAG:** Developing AI-driven knowledge management systems leveraging structured audit and inspection data for enhanced institutional decision-making.
- **Centre of Excellence for Indian Heritage in Digital Space:** Building immersive AR/VR-based digital experiences for preservation and presentation of Indian heritage.

Key Milestones

- Developed technologies for 7DX Stereoscopic 3D Immersive VR Experiences focused on Indian heritage in digital spaces.
- Advanced the Abyom Autonomous Launch & Landing System (AALLS) supporting autonomous aerospace applications.
- Designed and implemented an anti-drone laser neutralization system for precision defence applications.
- Empanelled with CERT-IN for specialized cybersecurity audit and consulting services.

Strengthening India's Defence Innovation Ecosystem

India's defence technology ecosystem is rapidly evolving across AI, autonomous systems, tactical communications, drones, advanced manufacturing, and battlefield technologies driven by Atmanirbhar Bharat, iDEX, and growing indigenous defence innovation capabilities. As the country strengthens its focus on technological self-reliance and future-ready defence systems, centres like Agnishodh are enabling faster translation of research into deployable military technologies through closer collaboration between the armed forces, academia, startups, and industry.



Founded: 2025



General Upendra Dwivedi, Former Chief of the Army Staff (COAS), Govt. of India at IITMRP to launch Agnishodh

Focus Areas: Defence AI • Autonomous Systems • Tactical Communications Systems
• Drone & Counter-Drone Technologies • Additive Manufacturing • AR/VR Training Systems

Strategic Focus: Developing indigenous defence technologies and accelerating Army–Academia–Industry collaboration for emerging warfare capabilities.

Flagship Projects

- **Ramjet Powered 155 mm Artillery Shell:** Development initiative focused on advanced indigenous artillery technologies in collaboration with IIT Madras, startups, MSMEs and defence stakeholders.
- **Drone & Autonomous Systems Ecosystem:** Developing indigenous drone technologies, tactical systems, and rapid prototyping frameworks for strategic defence applications.
- **Defence AI & Simulation Technologies:** Advancing AI-enabled battlefield systems, immersive AR/VR training platforms and secure tactical networking technologies.

Key Milestones

- Established the Agnishodh – Indian Army–IIT Madras Research Cell at IIT Madras Research Park.
- Initiated the Drone Nursery and Training Facility proposal and capability framework.
- Advanced collaborations across AI, communication technologies, autonomous systems, and defence innovation within the IITM ecosystem.

Building India's Indigenous Semiconductor Stack

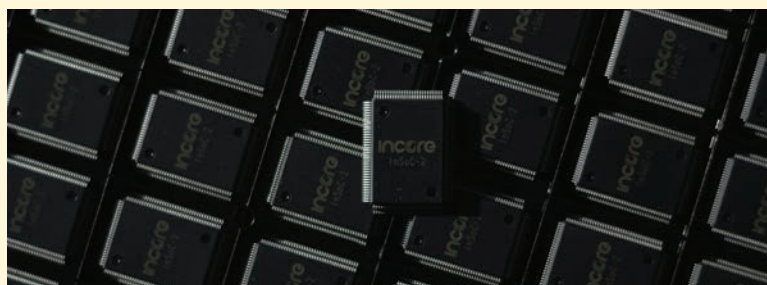
India's semiconductor ambitions are rapidly expanding beyond consumption and assembly toward indigenous capability across chip design, verification, security, and silicon productization. Driven by national policy, rising demand across AI, IoT, automotive, edge computing, and the emergence of RISC-V architectures, the sector is entering a defining phase of growth.

At IIT Madras Research Park, startups across the semiconductor value chain are contributing to this shift, building the technologies, platforms and intellectual property powering a more self-reliant and globally competitive semiconductor ecosystem.



InCore

Founded: 2018
Semiconductor Layer:
Design IP & Chip Design



A precision grid of IxSoC-2 system-on-chips engineered by InCore

Core Technology

- Automating frontend SoC design workflows and building proprietary semiconductor IP including RISC-V cores, interconnects, and security accelerators.

India Sector Landscape

- India's semiconductor ecosystem is witnessing the rise of its first generation of homegrown chip startups.
- As domestic design and manufacturing capabilities expand, faster development cycles and indigenous IP will be critical to long-term semiconductor self-reliance.

Positioning

- InCore enables semiconductor teams to reduce frontend SoC design timelines from 3–4 months to less than a week.
- The company is strengthening India's semiconductor stack through proprietary RISC-V IP, interconnects, and security accelerators.

Key Milestone

- Enabled five customer tape-outs while continuing to expand its indigenous semiconductor IP portfolio.

FRONTIER TECHNOLOGIES



Vyoma

Incubated: 2021

**Semiconductor Layer:
Verification, Validation &
Security Infrastructure**



The development and engineering team behind Vyoma's UpTickPro

Core Technology

- Cloud-native verification and pre-silicon security platform combining emulation, software bring-up, side-channel analysis, and agentic AI verification workflows for RISC-V chip development.

India Sector Landscape

- As AI hardware and domain-specific chips grow in complexity, verification and security are emerging as critical bottlenecks in semiconductor development.
- India's opportunity lies not only in building chips, but also in developing the enabling platforms required for trusted silicon development.

Positioning

- Vyoma is building the software-defined infrastructure layer for next-generation semiconductor development.
- Its platform helps chip design teams improve verification speed, reduce engineering overhead, and accelerate production-ready silicon development.

Key Milestone

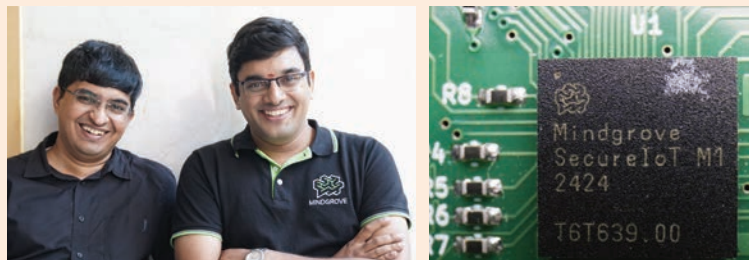
- Expanded into pre-silicon security with active deployments in the AI hardware space and strengthened integration with the SHAKTI RISC-V ecosystem at IIT Madras.



MINDGROVE

Incubated: 2021

**Semiconductor Layer:
Fabless Semiconductor Design &
Productization**



Shashwath T. R. & Sharan Srinivas Jagathrakshakan, Co-founders of Mindgrove

Core Technology

- Designing Indigenous Systems-on-Chips (SoCs) based on the Digital India RISC-V Shakti processor core for signal processing, edge vision, and IoT applications.

India Sector Landscape

- India's semiconductor ecosystem is steadily evolving from design services toward full-stack semiconductor capability.
- Rising demand across AI, automotive, IoT, and edge computing is accelerating the need for commercially viable, India-designed silicon products.

Positioning

- Mindgrove is contributing to India's semiconductor self-reliance through indigenous, high-performance SoCs built on the RISC-V Shakti processor core.
- Its chips are designed to reduce dependence on imported technologies while enabling wider adoption of advanced embedded systems across industries.

Key Milestone

- Achieved volume production of its Secure IoT SoC and successfully completed the experimental tape-out of its second chip, Vision SoC.

Advancing the Future of Precision Healthcare

India's healthcare innovation ecosystem is entering a new phase driven by advances in biotechnology, AI-enabled diagnostics, precision medicine, and next-generation medical devices. As the sector shifts toward indigenous product innovation, deep-tech startups are building technologies spanning molecular diagnostics, organ-on-chip systems, and precision healthcare for a more resilient and globally competitive healthcare ecosystem.



Incubated: 2020
**Organ-on-Chip Systems &
Advanced IVF Technologies**



Ikram Khan, Founder, ISMO Biophotonics



Integrated installation of ISMO product within a dual-microscope IVFtech workstation

Core Technology

- Developing organ-on-chip platforms and IVF clinical systems integrating microfluidics, biophotonics, and AI-driven imaging. Focused on precision drug screening, embryo selection, and next-generation preclinical validation systems.

India Sector Landscape

- The next phase of growth will depend on indigenous medical technologies that reduce reliance on imported research and clinical systems.

Positioning

- ISMO is building indigenous deep-tech healthcare platforms spanning organ-on-chip systems, biosensing, and intelligent IVF infrastructure.
- Its technologies are designed to improve predictive accuracy, reduce healthcare costs, and accelerate the shift toward personalised and human-relevant healthcare models.

Key Milestone

- Deployed early versions of its EmbryoOne IVF platform across IVF clinics, validated organ-on-chip prototypes for personalised drug screening and initiated collaborations with pharma and healthcare partners for platform validation.



Core Technology

- Developing an epigenetic, AI-driven liquid biopsy platform for non-invasive early cancer detection. Focused on high-accuracy screening solutions for liver cancers including Hepatocellular Carcinoma.

India Sector Landscape

- Rising cancer incidence and growing demand for early, non-invasive diagnostics are accelerating innovation in molecular diagnostics and precision oncology.
- India has a strong opportunity to build affordable, globally relevant diagnostic technologies through indigenous R&D and clinical validation.

Positioning

- Tvaster Genkalp is building AI-enabled epigenetic screening technologies designed to improve early cancer detection and reduce dependence on invasive diagnostic procedures.
- Its platform combines molecular diagnostics, liquid biopsy, and AI-driven imaging to improve accessibility and clinical decision-making.

Key Milestone

- Clinically validated Episcreen® Liver across 2000+ samples, demonstrated ~90% sensitivity and specificity, and expanded adoption across leading hospitals including Rela, Apollo, Kauvery, Yashoda Hospitals and Sir Ganga Ram Hospital.

Powering India's Next Mobility Transition

As EV adoption accelerates across mobility, drones, and industrial systems, building indigenous energy technologies is becoming critical to long-term energy security and supply chain resilience. At IIT Madras Research Park, players across the mobility and clean energy ecosystem are developing technologies that enable faster charging, higher performance, and scalable electrification tailored for Indian conditions.



Triolt Energy Pvt Ltd.

Incubated: 2022
Advanced Battery Cells &
Energy Storage



Triolt's 60V ultra-fast charging lithium-ion battery pack

Core Technology

- Developing high-performance lithium-ion battery cells with fast charging, high discharge capability, and long cycle life. Focused on battery solutions for drones, EVs, and high-power industrial applications.

India Sector Landscape

- India's EV and drone ecosystem is driving rapid demand for advanced battery technologies and domestic cell manufacturing capability.
- Reducing dependence on imported cells and strengthening local energy storage infrastructure will be critical to India's clean mobility transition.

Positioning

- Triolt is building indigenous battery technologies designed for high-temperature, high-performance Indian operating conditions.

Key Milestone

- Progressed from lab-scale validation to pilot-scale cell development with a ~200 kWh pilot production line, achieved BIS certification and demonstrated deployments across drone and electric mobility applications.

Embedded & AI-driven Engineering for Intelligent Mobility Systems



AN ALTEN COMPANY

Founded: 2017

Core Technology

- IElektron develops next-generation engineering solutions for Software Defined Vehicles (SDVs), intelligent mobility, and connected transportation systems. Its capabilities span ADAS and autonomous driving solutions, embedded AI and computer vision systems, EV Battery Management Systems (BMS), motor control units, and intelligent infotainment platforms powering the future of software-centric mobility.

India Sector Landscape

- India is witnessing rapid growth across EV adoption, intelligent mobility, embedded systems, AI-driven transportation, and connected vehicle ecosystems.
- Increasing investments in semiconductors, autonomous systems, Industry 4.0, and digital engineering are accelerating the development of next-generation mobility technologies.
- The shift toward software-centric vehicles is creating opportunities for India to emerge as a global engineering hub for SDVs, embedded AI, and connected mobility ecosystems.

Positioning

- IElektron is building advanced domestic capabilities across automotive software, embedded AI, EV electronics, computer vision, and intelligent mobility engineering.
- The company is helping strengthen India's position within the global mobility technology value chain while reducing dependence on imported engineering capabilities.
- Through continuous engagement with OEMs, Tier 1 suppliers, and IIT Madras faculty collaborations, IElektron is contributing to the development of highly skilled engineering talent across emerging mobility technologies.

Key Milestone

- Joined the global ALTEN ecosystem, significantly expanding access to international engineering programs, advanced mobility initiatives, and global delivery capabilities across next-generation automotive and intelligent mobility technologies.

CORE TECHNOLOGY CAPABILITIES



Embedded
Product



Data Science
& Analytics



AI & Computer
Vision



Tools &
Automation



Verification &
Validation

Faculty Driving India's Frontier Technologies

What will define India's next decade of innovation? We sat down with two IIT Madras faculty leaders to discuss the technologies shaping India's future, the opportunities and how academia and industry are working together to translate research into real-world impact.



Prof. Anil Prabhakar

Professor,
Department of Electrical Engineering
Project Director, DST-NQM, Samgnya

Beginning in photonics—the foundation of many quantum technologies—Prof. Prabhakar's work today spans across quantum communications, assistive technologies and deep-tech entrepreneurship. But beyond the innovation and founding multiple ventures, he believes it is his anchor as an academic that keeps him most grounded, reminding him why curiosity remains at the heart of scientific discovery.

“Technologies like quantum are tools to solve some of society's pressing problems”

India's Quantum Moment

As Project Director of DST-NQM, Samgnya at IIT Madras Research Park, Prof. Prabhakar is advancing efforts towards an end-to-end quantum communication ecosystem—from developing indigenous quantum-secure technologies and nurturing frontier startups to pursuing the ambitious vision of a 2,000+ km quantum-secure communication corridor connecting Chennai and Delhi, laying the foundation for India's future quantum-secure digital infrastructure.

He believes India's greatest opportunity lies in quantum communications, with future leadership depending on stronger indigenous capabilities across photonics, semiconductors, and advanced materials.



Reflecting on the ecosystem behind these ambitions, he believes its greatest strength has always been its willingness to think beyond what's possible.

“The IIT Madras Research Park is driven by a larger-than-life vision starting at a time when nobody could even dream of it.”

Faculty Driving India's Frontier Technologies

From making India's roads safer to advancing the future of intelligent mobility, Prof. Shankar Ram's research has always been driven by one question: how can engineering solve real-world problems? Through over 15 years of industry collaboration, Prof. C.S. Shankar Ram has demonstrated how long-term partnerships between academia and industry can accelerate innovation and create globally competitive technologies.



Prof. C.S. Shankar Ram

Professor,
Department of Engineering Design
Associate Dean (Industrial Consultancy
& Sponsored Research)

Engineering Safer Mobility

India records the highest number of road accident fatalities in the world, making vehicle safety one of its most pressing engineering challenges. Prof. Shankar Ram's work spans active safety systems, vehicle dynamics, advanced driver assistance systems (ADAS), embedded controls, and zero-emission trucking, bringing together hardware, software, and intelligent engineering to build safer, smarter mobility solutions.

The India Opportunity

As India accelerates its transition towards software-defined mobility, new safety regulations have opened significant opportunities for indigenous innovation. Through long-standing collaborations with **Madras Engineering Industries (MEI)** and **IElektron** at IIT Madras Research Park, Prof. Shankar Ram is helping develop next-generation active safety systems designed in India.

Building Together

Good science, Prof. Shankar Ram believes, takes time. His collaboration with Madras Engineering Industries (MEI)—one of IIT Madras' longest-running industry partnerships—has been built on trust, patience, and a shared commitment to long-term research. Today, many of the MS and PhD students who contributed to the work also lead engineering teams within partner companies, creating a continuous cycle of talent, knowledge, and innovation across the IIT Madras Research Park ecosystem.

For Prof. Shankar Ram, the true outcome of collaboration is not just better technologies, but enduring relationships that continue to create value. It is this culture, he believes, that defines IIT Madras Research Park.

“The openness of the IIT Madras Research Park ecosystem has always been its greatest strength. It creates the right environment for faculty, industry, startups, and students to collaborate and build together.”

Measuring Collaborative Impact

Insights from our R&D clientele highlight how the IITMRP collaborative model continues to deliver measurable impact across research, innovation and commercialization.

- 88% Positive rating for ecosystem facilitation and support
- 78% Saw measurable impact on product development and commercialization
- 65% Reported improved innovation capabilities through ecosystem access
- 53% Ranked IITMRP collaborations above leading global university benchmarks
- 44% Actively engaged with startups from the ecosystem

I Business Operations

IITMRP's occupancy performance reflects the continued strength and evolution of its deep-tech innovation ecosystem. With a growing focus on frontier technology sectors, the year saw the onboarding of new clients across AI, semiconductors, aerospace, sustainability, healthcare, advanced manufacturing, and strategic technologies - further strengthening the diversity and depth of the ecosystem.

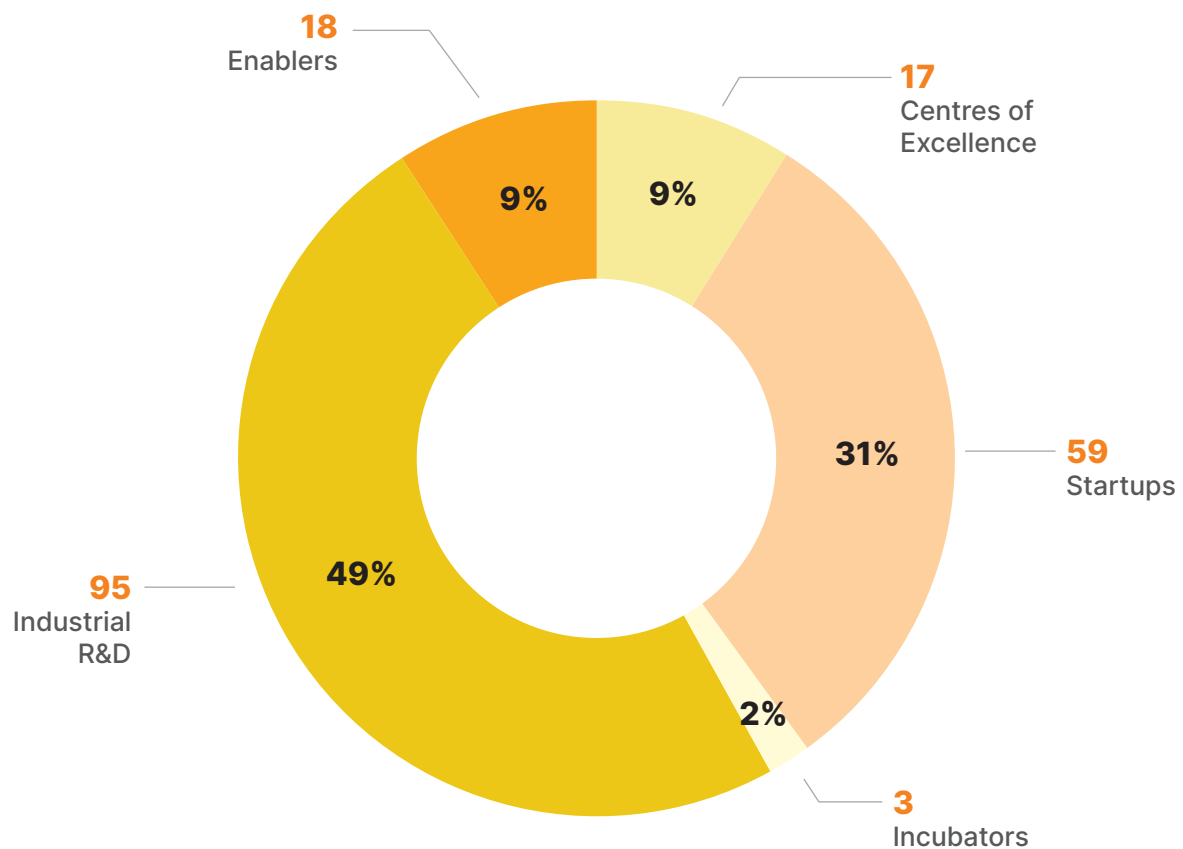
Through a combination of strategic ecosystem curation, long-term industry partnerships, and research-driven collaboration opportunities, IITMRP continues to attract organisations building next-generation technologies while maintaining high occupancy and a vibrant culture of innovation.



99%
Occupancy



41
Clients Onboarded



A Growing Ecosystem of Frontier Innovation

Fostering a truly multi-disciplinary ecosystem, over the past year, we have been proud to welcome and collaborate with a diverse group of clients across a wide spectrum of deep-tech and industrial sectors.

A snapshot of the diverse organizations that joined the IITMRP ecosystem during FY26.

Centres of Excellence



IITM Centre of Excellence for
Defence & National Security



IITM Centre of
Excellence for Road Safety



India's National Hub for
Quantum Communication

Startups



MedTech & Digital Health



CleanTech



SpaceTech



MedTech



SpaceTech & Satellite
Communications



Semiconductors



Advanced Optics, Optoelectronics
& Precision Medical Diagnostics



Medical Devices



Advanced Materials



BioTech



AgriTech & Chemical Manufacturing

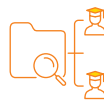
I Research Collaboration

At IIT Madras Research Park, strategic partnerships, curated interactions, and translational research initiatives continue to strengthen the collaborative infrastructure driving our innovation ecosystem. During FY26, IITMRP's recognition as a DSIR-approved SIRO (Scientific and Industrial Research Organisation) was renewed, reaffirming its role in enabling research-led innovation and industry collaboration. Through continued engagement with industry leadership and visits to client manufacturing facilities, the ecosystem further deepened opportunities for collaborative research, technology development and long-term innovation partnerships.



1,000+

Ecosystem interactions facilitated during FY26



200

Faculty interactions tracked through CRM



₹50 Cr+

Startup revenue enabled through industry engagements

Key highlights:

Launched the Research & Innovation Capabilities Enhancement (RICE) Program to extend IITMRP's research collaboration capabilities beyond the campus ecosystem, with multiple high-value collaborations underway.

IITMRP continued to strengthen industry-academia collaboration through curated faculty engagements, research connects and translational innovation initiatives across the IITM ecosystem.

Enabled first-time collaborations for new faculty with Research Park clients and supported industry partner discovery for research proposals and funding opportunities.

Hosted the MUMMAS (Mobile Urban Metabolism Multi-Attributes Sensing) platform event from IITM's Civil Engineering Department chaired by the MEITY Secretary, highlighting the growing potential for translational research and commercialization-led collaborations.



Demonstration of the MUMMAS (Mobile Urban Metabolism Multi-Attributes Sensing) platform

YEAR IN REVIEW

Client Collaboration Highlights:

Caterpillar signed its first Strategic University Partnership outside the US with IIT Madras as a result of significant research collaboration across Caterpillar global entities.

Pfizer launched its first Technovation Program exclusively for IITM faculty and startups.

Meril Life Sciences launched their MISSO Robot – India's first indigenous, fully active robotic surgical system developed almost entirely at IIT Madras Research Park.



The Research Collaboration team visits the Meril Life Sciences global headquarters at Vapi, Gujarat

I Admin & Infrastructure

During FY 2025–26, IITMRP continued to strengthen campus infrastructure, operational resilience, and client experience through strategic upgrades across utilities, energy systems, civil works and high-performance building infrastructure.

Campus Infrastructure & MEP Upgrades

- HVAC Optimizations: Installed a new 300 TR chiller with booster and make-up pumps while upgrading AHU, CSU, and FCU systems to maximize occupant comfort and cooling efficiency.
- Power & Utility Resilience: Deployed a new transformer and DG system alongside enhanced ventilation pathways to support peak occupancy and guarantee uninterrupted business continuity.
- Safety & Smart Monitoring: Upgraded campus-wide UPS infrastructure, integrated modern fire monitoring systems, and replaced deteriorated insulation to strengthen energy efficiency and facility safety.

Campus Modernisation

- Refurbished common areas, restrooms, corridors, and key shared infrastructure across campus blocks.
- Implemented multiple civil and waterproofing interventions to strengthen long-term infrastructure resilience.

Campus Connectivity

- An exclusive E-Cart Shuttle Service was launched to ensure a convenient commute between IIT Madras Research Park and the IIT Madras campus. Operating three fully electric shuttles, this eco-friendly service ensures seamless access between both campuses and accelerates academic-industrial synergy.

Strengthening emergency response with Ambulance Services

- Equipped and staffed to provide prompt, reliable, and professional medical assistance demonstrating our commitment to create a secure and caring environment.



I Human Resources

IIT Madras Research Park continued to strengthen its people and culture practices in line with the needs of a growing, future-ready organisation. From capability building and employee well-being to workplace inclusion and engagement, the focus remained on creating a collaborative, high-performance work environment that supports long-term organisational growth.

Key highlights:

- Learning & Development: A comprehensive L&D programme was conducted in partnership with Krea, focused on leadership, collaboration, customer engagement, and team effectiveness.
- PoSH & Workplace Inclusion: The Prevention of Sexual Harassment (PoSH) Policy was formally rolled out across the organisation, alongside awareness and certification programmes conducted in partnership with CecureUs.
- Employee Engagement: Festival celebrations, town halls, team bonding initiatives, and employee engagement activities continued to strengthen workplace culture and collaboration.



Reflecting on milestones and charting the path forward at the IITMRP Town Hall Meeting

Shaping a More Sustainable and Inclusive Future

During FY 2025–26, IIT Madras Research Park advanced its transition toward a renewable-energy-powered campus, meeting up to 70% of its energy needs through renewable sources—creating an environmental impact equivalent to planting 207,650 trees over 10 years. To extend these benefits across the ecosystem, IITMRP introduced a revised energy tariff structure designed to enable organisations on campus to participate in a more cost-efficient and sustainable energy model.



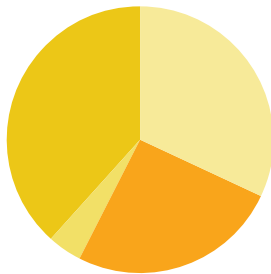
22.6GW
Total Energy
consumed
by IITMRP



12459
metric tons of
CO₂ reduced due
to renewable energy



72%
increased
energy cost
savings



Energy Profile

- Grid (TNEB) **32%**
- Wheeled-in Solar **25.5%**
- Rooftop Solar **4.3%**
- Wind **38.1%**
- Diesel (DG) **0.0%**



IIT Madras Research Park partnered with Gerrid AI and Chettinad Hospital and Research Institute to advance AI and robotics-driven assistive technologies focused on mobility, rehabilitation, and healthcare, with the long-term vision of building humanoid robotic devices.

Corporate

Events & Visits



The launch of MakeGPT by KochadAI Technologies at IITMRP's flagship auditorium — a venue designed for large-scale innovation showcases and industry gatherings.



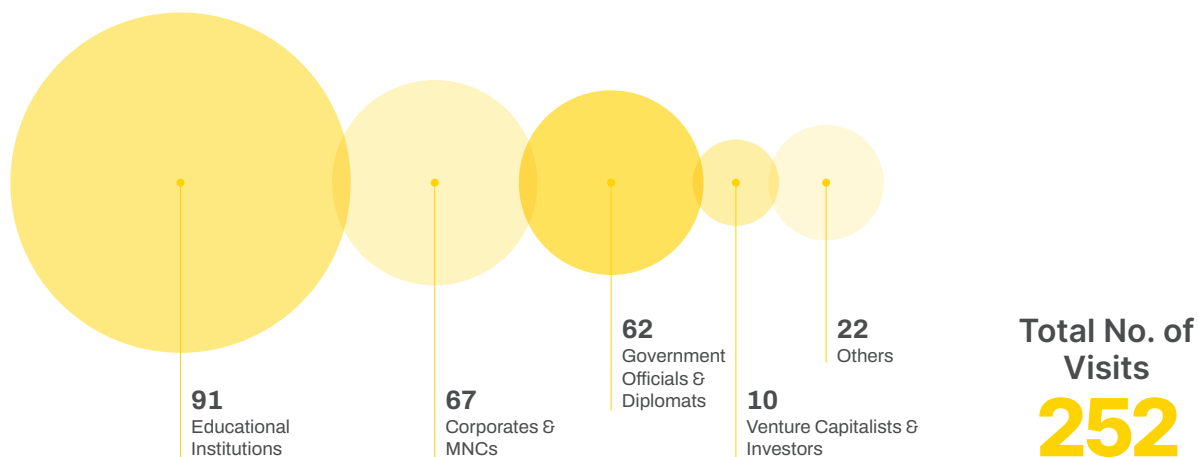
Blending immersive learning experiences with community, IITMRP's Amphitheatre hosted NSRCEL's Velocity program, creating opportunities for meaningful conversations and shared experiences.



Designed for workshops, leadership dialogues, and knowledge-sharing sessions, Raman Hall hosted the Tamil Nadu Land Use 2025, an international conference on research & innovation for a sustainable future.

Distinguished visitors at IITM Research Park

Over the past year, the IITMRP ecosystem welcomed a diverse cross-section of leaders from academia, industry, government, investment and the broader global innovation ecosystem. These engagements continue to strengthen strategic collaborations, knowledge exchange and opportunities for future innovation.



Dr. S. Jaishankar,
Minister of External Affairs,
Government of India

Aspiring Technologists

Explore the campus
during IITM Open Day





Shri Ajit Kumar Doval,
National Security
Advisor of India

Michael Hasper,
Consul General of the
Federal Republic of
Germany in Chennai



Dr. Saurabh Garg, IAS
Secretary,
Ministry of Statistics and
Programme Implementation (MoSPI) &
Former CEO, UIDAI (Aadhaar)

IITM Research Park In the News

IITMRP Showcases AI & EdTech Innovation at Bharat Bodhan AI Conclave

At the Bharat Bodhan AI Conclave, IITMRP showcased startups from its ecosystem working across AI, education, and skilling technologies. The conclave marked the first national convening of India's AI-in-Education ecosystem and formally launched Bodhan AI, the Centre of Excellence for Artificial Intelligence in Education under the IIT Madras Bodhan AI Foundation.



IITM Director Prof. V. Kamakoti Awarded the Prestigious Padma Shri

Prof. V. Kamakoti, Director of IIT Madras and Chairman, Board of Directors, IIT Madras Research Park was awarded the Padma Shri for his contributions to science and engineering. He was recognised for his work in developing India's first indigenous microprocessor through the SHAKTI initiative, complex computer architecture and strengthening India's digital infrastructure ecosystem.

IITMRP Highlights India's Deep-Tech Ecosystem at the Tamil Nadu Global Startup Summit 2025

At the Tamil Nadu Global Startup Summit 2025, IITMRP Group CEO Nat Malupillai spoke on scaling innovation through industry-academia collaboration. Organised by StartupTN, the summit brought together founders, investors and ecosystem leaders, with IITMRP showcasing how research, capital, mentorship, and industry partnerships are helping deep-tech ventures scale globally.



An architectural rendering of a large, modern multi-story building complex. The building features a mix of white, grey, and blue facades with extensive glass windows. It has a complex, interconnected design with several wings and a central courtyard area. The building is set against a backdrop of a hilly landscape with some trees and a road. The sky is a clear, light blue.

**Expanding the
ecosystem.
Accelerating
innovation.**

Architect's impression of ITMRP's Phase 3 expansion.



IIT Madras Research Park,
MGR Film City Road, Kanagam,
Tharamani, Chennai – 600 113.

-  respark.iitm.ac.in
-  linkedin.com/company/iitm��p
-  x.com/iitm_respark
-  youtube.com/@IITMadrasResearchPark