



Endiya



DEMO Insights Report 2025

India's Semiconductor Moment

Perspectives from DEMO

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Executive Summary

India stands at a decisive inflection point in the global semiconductor value chain – evolving from a consumption-driven market into a design and manufacturing powerhouse.

With the global semiconductor industry projected to surpass **\$1 trillion by 2030**, India's combination of **deep design expertise, growing domestic demand, and policy momentum** positions it to become a critical node in the world's technology supply chain.

The **India Semiconductor Mission (ISM)** and the **Design Linked Incentive (DLI) Scheme** together have mobilized **₹1.6 trillion (~\$18 billion)** in private investment across ten approved projects, creating potential capacity for **~90 million chips per day**.

India's domestic semiconductor market is expected to **double from \$52 billion in 2024 to \$103 billion by 2030**, driven by AI infrastructure, electric mobility, defense modernization, and 5G/6G connectivity.

The inaugural **DEMO: Semiconductors** – part of Endiya Partners' **DEMO (Deeptech Exponential Market Opportunities)** platform – convened over 100 entrepreneurs, investors, policymakers, and corporate leaders to examine India's readiness for this opportunity. The discussions, demonstrations, and data culminated in this DEMO Insights Report.

Key Findings

- India employs 150,000 semiconductor design engineers (~20% of the global design workforce) but holds <0.5% of global fabrication capacity.
- Seven strategic opportunity areas can anchor India's growth: EDA & IP Development, Analog / Mixed-Signal / RF Solutions, Power Semiconductors, Chiplets & Advanced Packaging, Test & Metrology, Tools & Equipment, and Trusted Supply Chains for automotive, defense, and telecom.
- Execution gaps remain in advanced-node manufacturing, ATMP / OSAT infrastructure, process know-how, and specialized workforce with a talent deficit of 10,000–13,000 manufacturing professionals projected by 2027.
- Policy and capital alignment are strong; ISM, DLI, and the India Deep Tech Investment Alliance (\$1 billion commitment) are creating an integrated ecosystem from R&D to commercialization.
- Panelists emphasized the urgent need to build multi-disciplinary talent across product management, business development, and go-to-market roles to realize India's Deeptech ambitions.

This report positions India's semiconductor journey within the global realignment of supply chains and identifies the pathways through which design excellence can translate into manufacturing credibility, reliability, and global competitiveness.

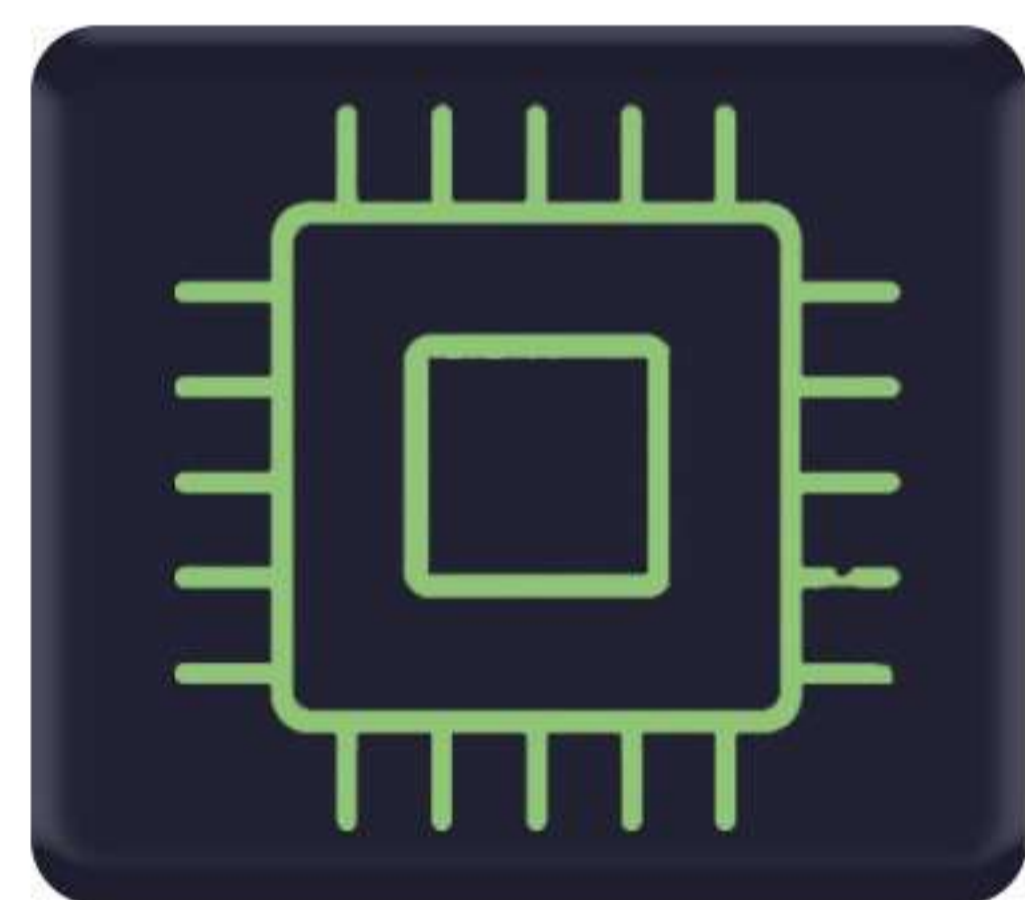


Global Semiconductor Renaissance

The semiconductor industry has entered an unprecedented growth phase, propelled by artificial intelligence (AI) applications, edge computing requirements, and geopolitical supply chain realignments. Global revenues reached \$650 billion in 2024, marking an 18–25% year-over-year increase and underscoring the sector's resilience despite broader macroeconomic headwinds.

AI Infrastructure Explosion

AI infrastructure has emerged as the primary growth driver, with data centers becoming the second-largest semiconductor market after smartphones. Data center silicon revenues nearly doubled from \$64.8 billion in 2023 to \$112 billion in 2024, while High Bandwidth Memory (HBM) experienced 74% year-over-year growth. The AI semiconductor market alone is projected to grow from \$56.42 billion in 2024 to \$232.85 billion by 2034, at a 15.23% CAGR. Key market drivers include:



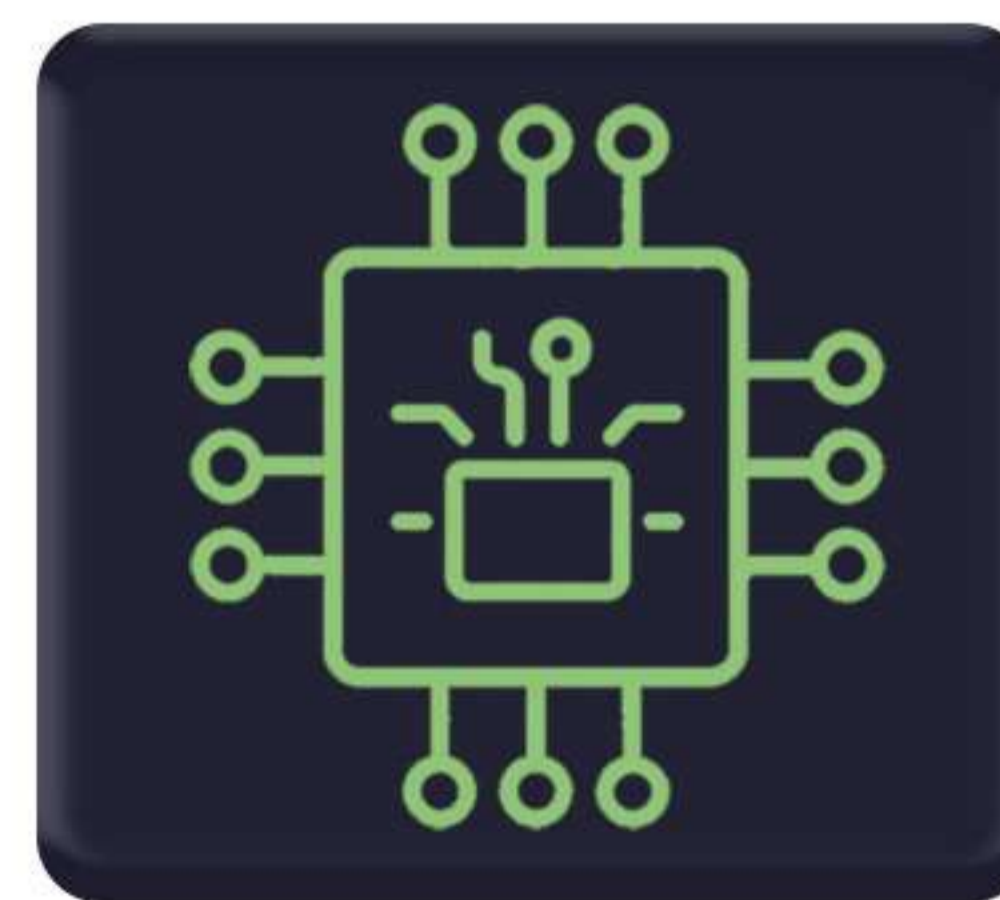
Advanced AI workloads requiring process nodes below 10nm



Edge AI hardware expanding from \$26.14 billion in 2025 to \$58.90 billion by 2033



Specialized AI accelerators enabling real-time inference



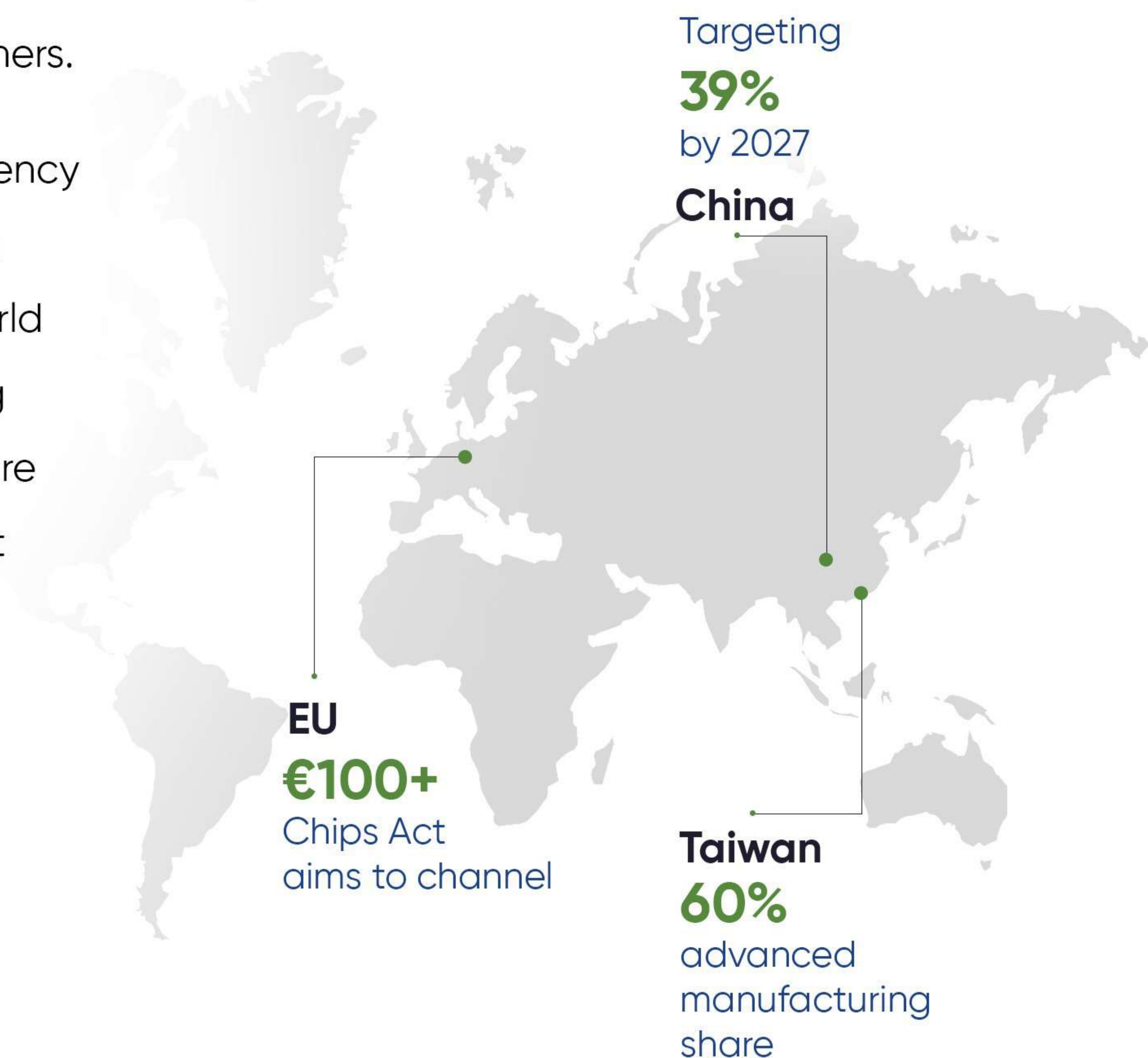
Power-efficient processors for battery-operated edge devices

Geopolitical Supply Chain Realignment

Surging demand is colliding with a brittle supply base, a byproduct of the pandemic and intensifying trade tensions. Taiwan accounts for 60% of advanced manufacturing while export controls have fragmented global markets.

Given this, OEMs are diversifying supply chains through friend-shoring initiatives that prioritize trusted, democratic manufacturing partners.

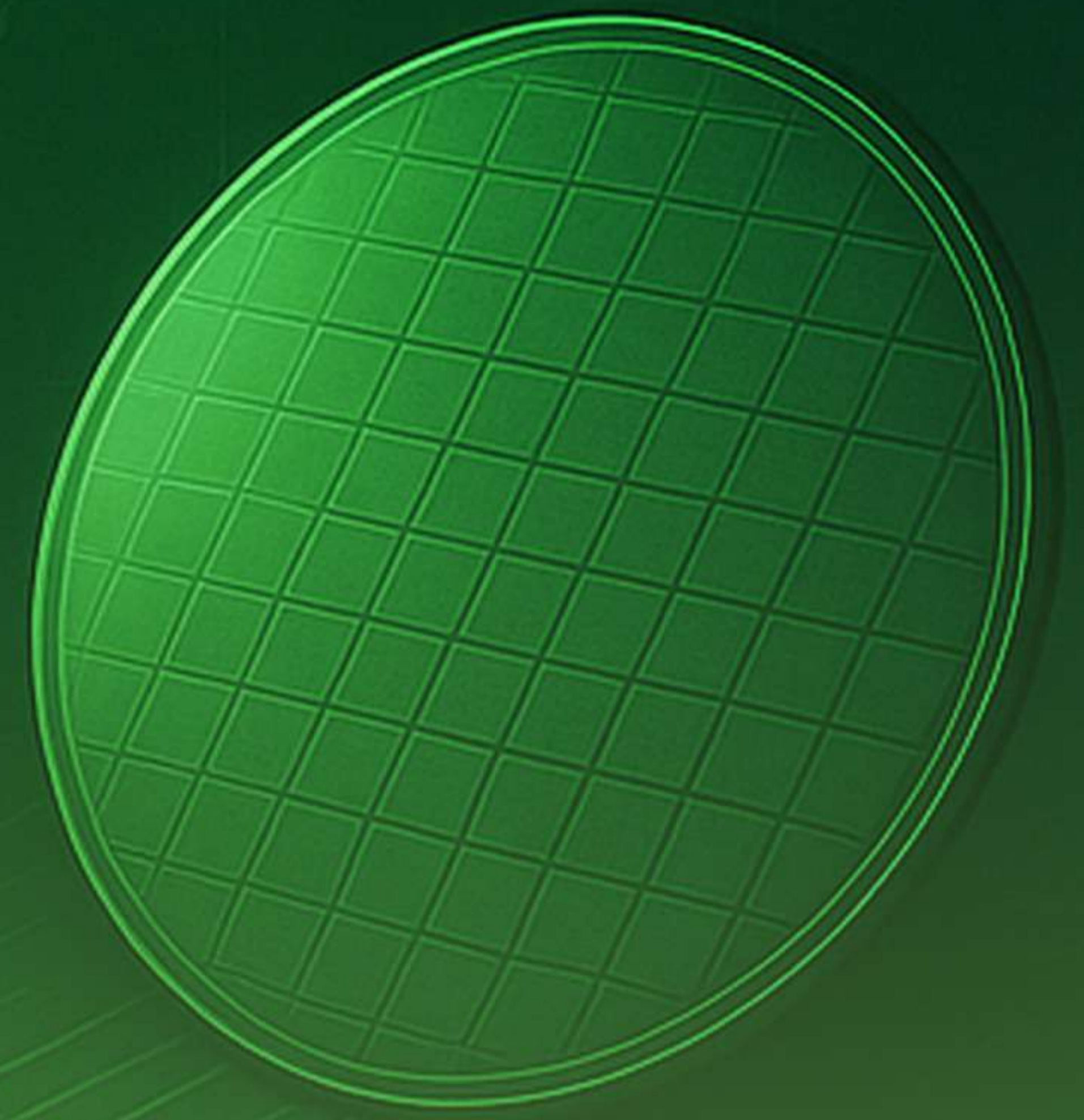
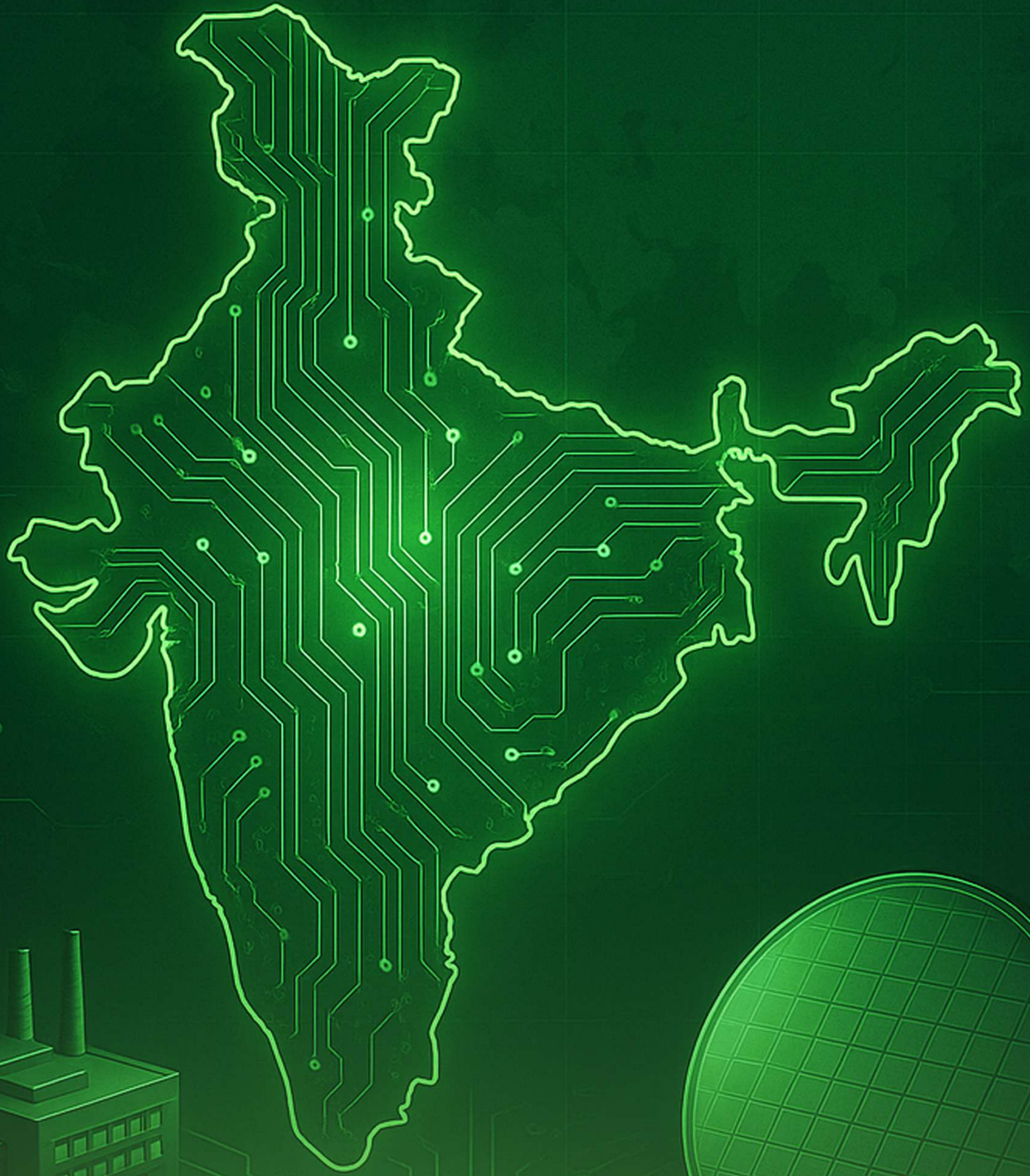
China is accelerating self-sufficiency efforts, adding more chipmaking capacity than the rest of the world combined in 2024, and targeting 39% global market share in mature nodes by 2027. The US CHIPS Act has mobilized \$450 billion in private investment, while the EU Chips Act aims to channel €100+ billion toward strategic autonomy.



Investment Surge and Manufacturing Shift

- \$2.3 trillion in wafer fabrication investment projected (2024–2032) versus \$720 billion in the prior decade
- US is targeting a step-change in logic capacity to 28% by 2032, from zero in 2022
- Against this backdrop, India is emerging as a trusted alternative manufacturing destination and design-led growth engine for the next wave.





India's Semiconductor Landscape

India's semiconductor story is first and foremost a design story. A concentrated pool of world-class engineers has made the country a global center of excellence, reinforced by geographic clustering that speeds up knowledge spillovers and career mobility. Bengaluru alone hosts 42% of semiconductor Global Capability Center (GCC) units and 61% of specialized talent.

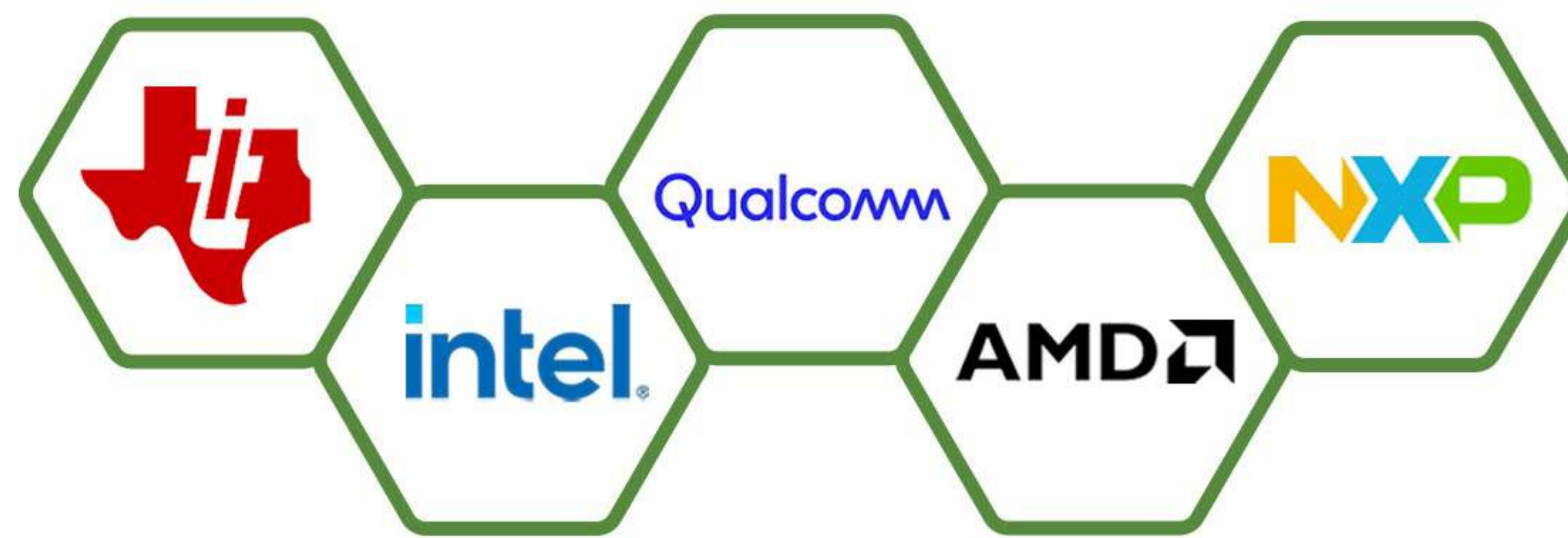
Design Talent Foundation

India anchors an Indian semiconductor ecosystem that now employs 150,000 semiconductor design engineers - roughly 20% of the global workforce - within a broader pool of 220,000 professionals. This ecosystem includes 95+ GCCs employing 50,000+ specialists, supported by IITs and IISc providing continuous talent development.

India's strengths include cost-effective engineering talent at a 60-70% cost advantage versus Silicon Valley and a proven track record in complex system design. Democratic governance and strong IP protection underpin its trusted partner status, while a growing domestic market—projected to double from \$52 billion to \$103 billion by 2030—creates natural demand pull.

Global corporations have taken note and scaled operations in India:

- **Intel:** 13,000+ employees across multiple sites
- **AMD:** Largest global design center in Bengaluru, expanding to 3,000 engineers by 2028
- **NXP:** \$1 billion investment to double its Indian workforce to 6,000+
- **Qualcomm** operates one of its largest R&D centers in Hyderabad, with 14,000+ engineers focusing on 5G, AI, and automotive applications.
- **Texas Instruments (TI)**, the first multinational to establish a semiconductor design center in India (1985), continues to anchor advanced analog and embedded processing R&D.

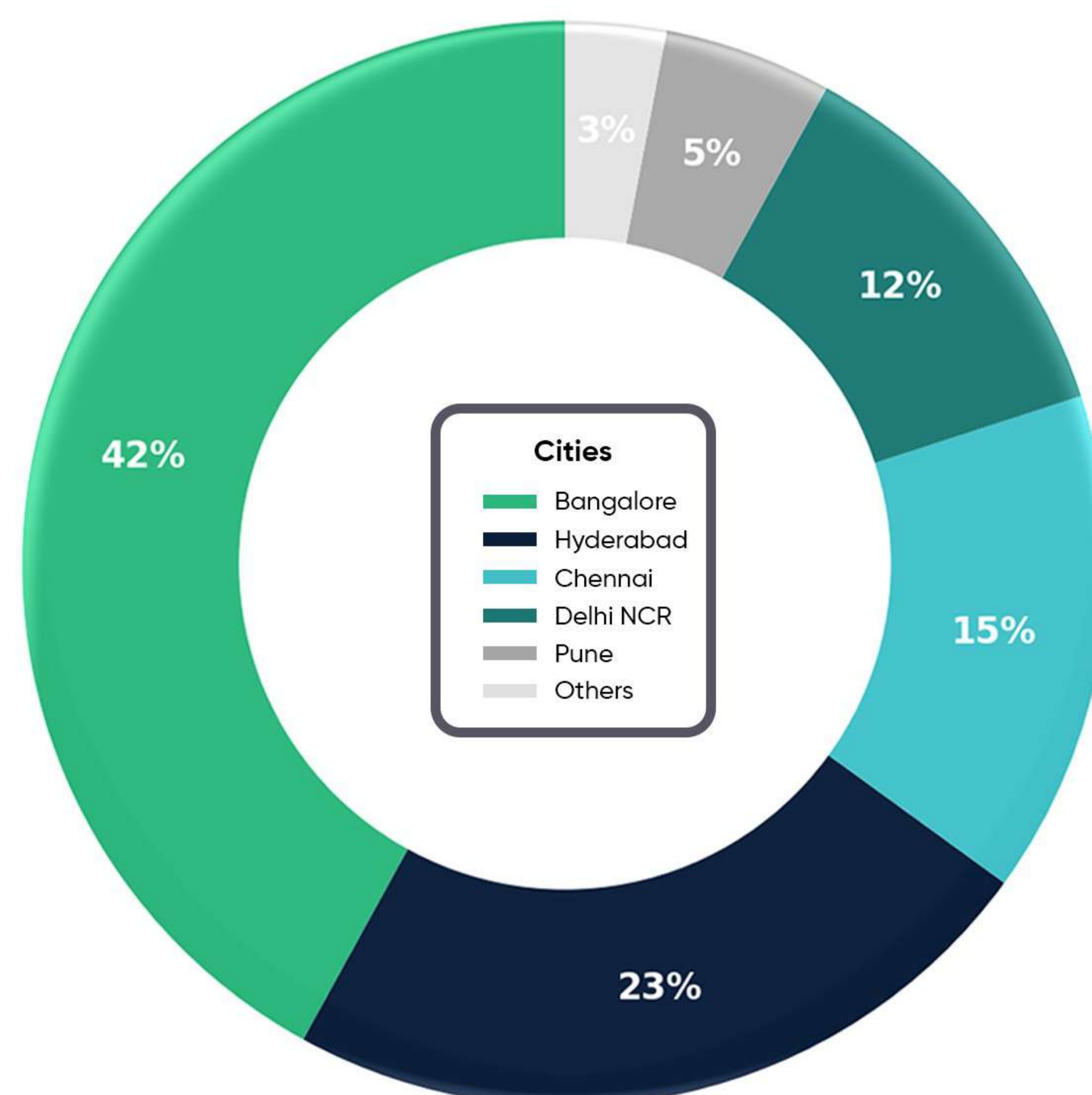


This positions India as the natural hub for design-led growth in the next phase of the semiconductor market.

India's design depth is real but does not automatically translate into manufacturing maturity.

Three execution gaps still constrain scale:

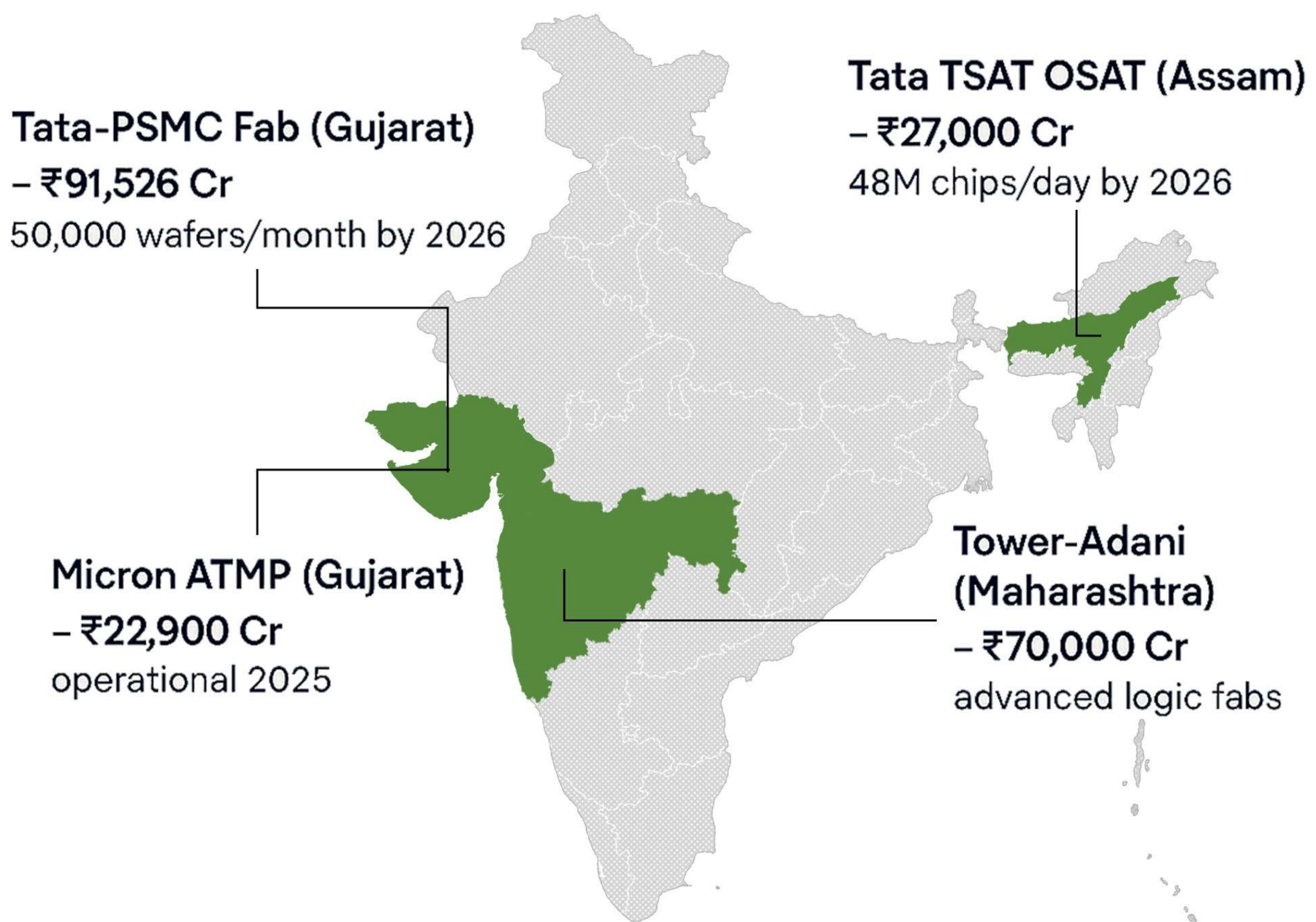
- No operational advanced node fabs
- Nascent ATMP / OSAT infrastructure
- Shortage of 10,000 – 13,000 specialized manufacturing personnel by 2027



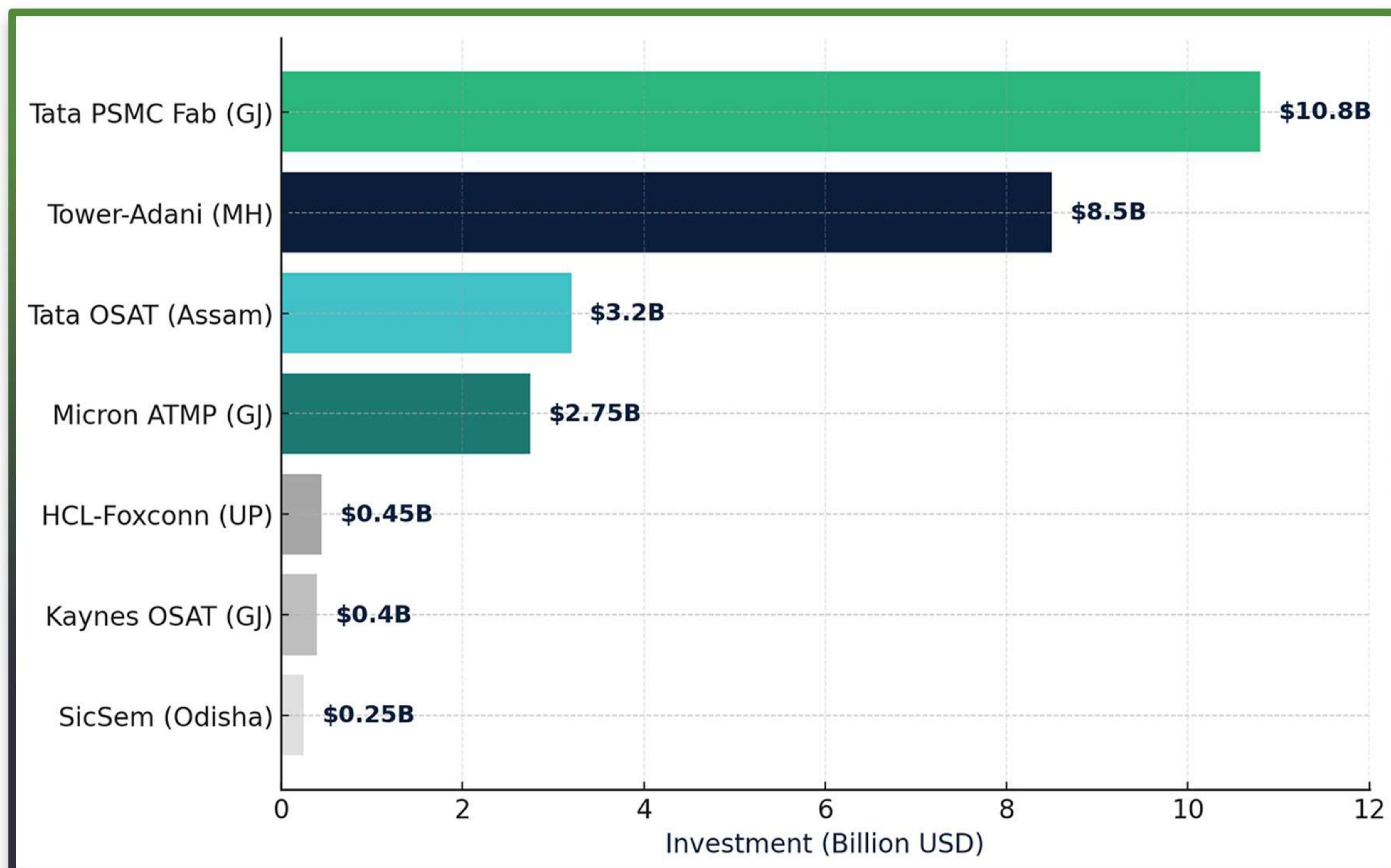
Policy Foundations and Investment Framework

Policy has moved to close the gap. Launched in December 2021 with ₹760 billion (\$8.67 billion), the **India Semiconductor Mission (ISM)** has already mobilized ₹1.60 trillion (\$18.23 billion) in private investments. It covers up to 50% of project costs, complemented by 20–25% state-level incentives. It has approved ten major projects representing \$18 billion in total investment, creating capacity for 91 million chips per day.

- **Tata-PSMC Fab (Gujarat)** – ₹91,526 Cr; 50,000 wafers/month by 2026
- **Micron ATMP (Gujarat)** – ₹22,900 Cr; operational 2025
- **Tata TSAT OSAT (Assam)** – ₹27,000 Cr; 48M chips/day by 2026
- **Tower-Adani (Maharashtra)** – ₹70,000 Cr; advanced logic fabs



On the design side, the **Design-Linked Incentive (DLI)** is seeding the future pipeline. It has approved ₹803 crore for 23 chip design projects, supported 278 institutions with EDA / IP access, and backed 72 startups leading to the completion of six tape-outs and ten startups securing VC funding. Training programs like Chips-to-Startup (C2S) and SMART Labs are building a pipeline of over 100,000 trained engineers.







Market Demand and Applications

India's domestic demand is sufficient to anchor near-term capacity while building export credibility.

Mobility

Semiconductor content per vehicle is rising from \$312 (ICE) to \$600+ (EV). India's EV sales reached 1.97 million in 2024 (27% YoY growth), with government targets of 30% EV penetration by 2030. The ADAS market is projected to grow from \$2.29 billion to \$14.90 billion by 2034. However, infrastructure and affordability challenges remain.

Networks

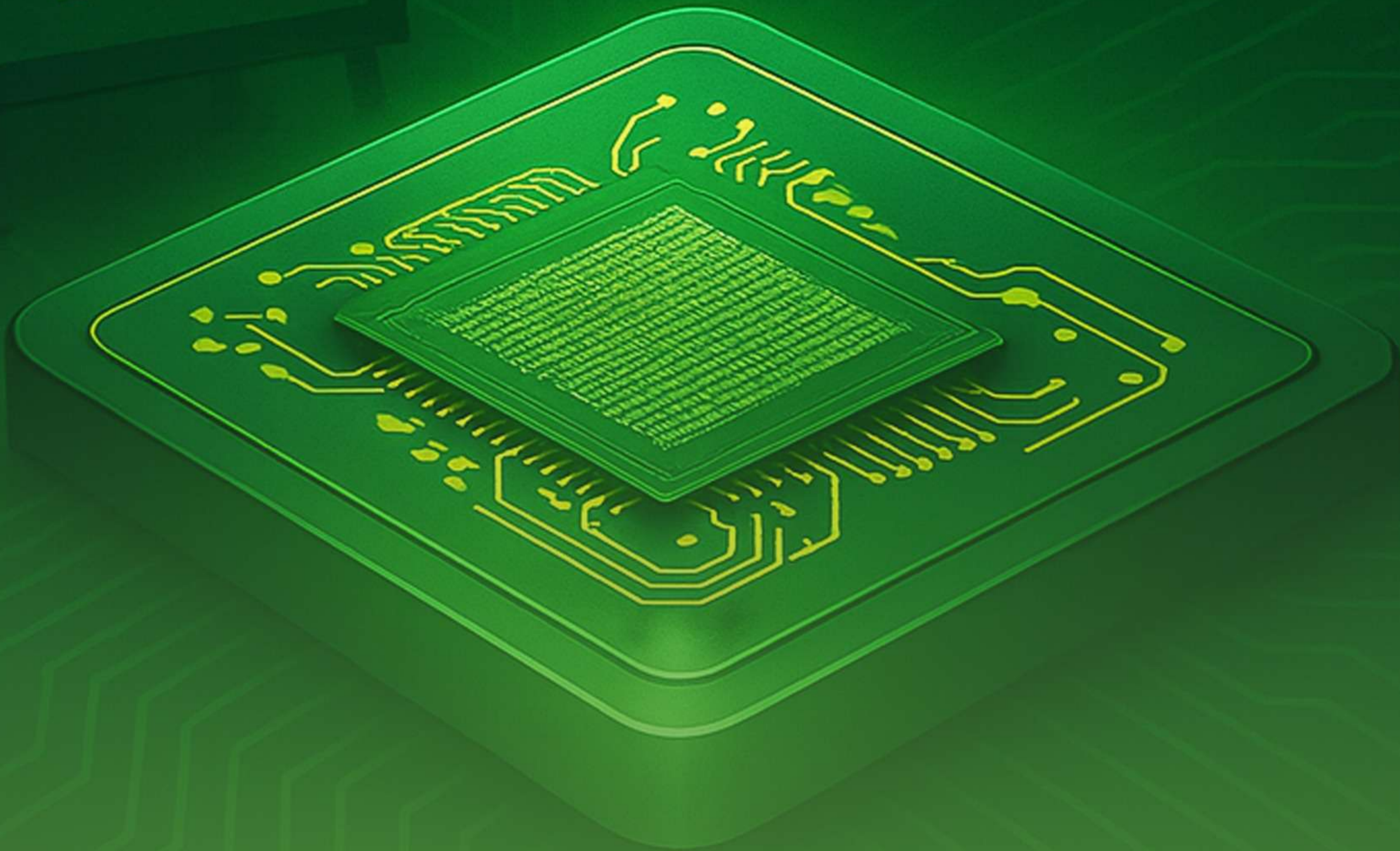
India completed nationwide 5G rollout by October 2024, covering 779 of 783 districts with 460,000+ base stations. Reliance Jio and Airtel together serve 238 million 5G subscribers, driving demand for RF front-end components and ultra-low latency processors. 6G preparation, led by the Bharat 6G Alliance, is expected to create demand for terahertz chips and AI-powered networks.

Defense and Strategic Applications

Defense spending rose 9.5% to ₹6.81 trillion (2025–26), with semiconductor needs spanning secure communications, radar/sensor processing, and space-grade chips. The India–US National Security Fab (2024) focuses on infrared, GaN, and SiC semiconductors, with applications in defense, telecom, and green energy.

Industrial Automation

Chip shortages have created 24–52-week lead times for industrial components. India's analog / mixed-signal IP market is growing at 24.8% CAGR, driven by IoT, smart cities, and renewable energy.



Startups and Venture Funding

India now hosts 100+ semiconductor startups spanning design, EDA, AI chips, and power devices. Notable players include:

- **Netrasemi (Kerala):**
Edge AI SoCs; ₹107 crore Series A from Zoho.
- **Mindgrove (Chennai):**
RISC-V Shakti cores; \$2.32M seed led by Peak XV.
- **InCore Semiconductors:**
RISC-V embedded processors; \$3M seed funding
- **AGNIT Semiconductors:**
GaN for defense/telecom; \$3.5M seed.
- **Maieutic Semiconductors:**
AI-driven analog design copilot; \$4.15M seed.
- **VerveSemi Microelectronics:**
110+ IPs, 25 IC SKUs for space / defense

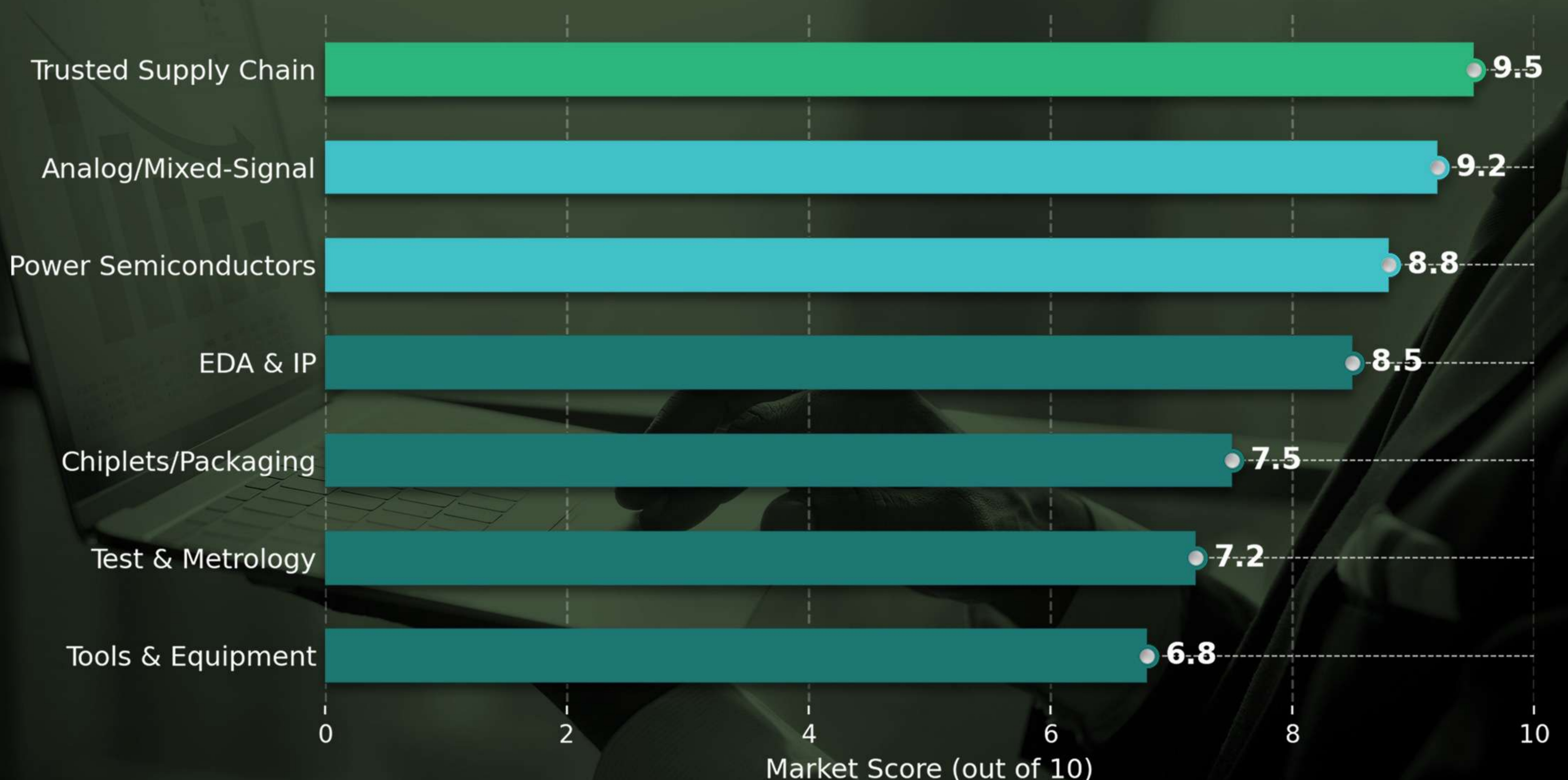
Together, these startups are converting India's design depth into investable IP and application-specific silicon opportunities. VC investment surged from \$5M in 2023 to \$28M in 2024. The India Deep Tech Investment Alliance committed \$1B over 5–10 years. However, only 7 of 59 DLI applicants achieved full approval, highlighting technical and commercial challenges. Even so, investor sentiment is constructive, with 92% being optimistic about India's prospects and 63% saying they are willing to fund IP-focused chip startups with long timelines, with a preference for application-specific solutions.

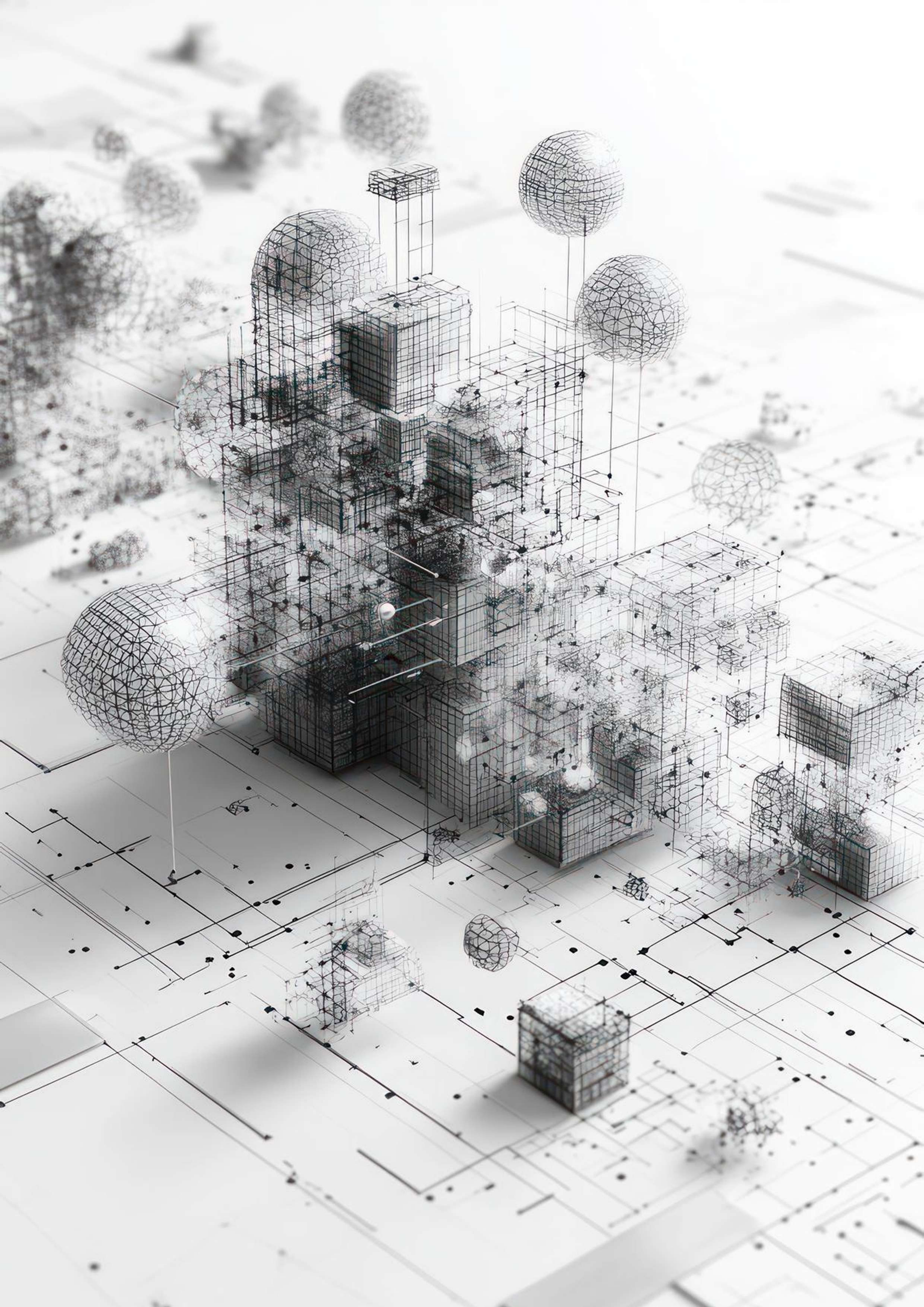
Strategic Opportunity Areas

Semiconductor content per vehicle is rising from \$312 (ICE) to \$600+ (EV). India's EV sales reached 1.97 million in 2024 (27% YoY growth), with government targets of 30% EV penetration by 2030. The ADAS market is projected to grow from \$2.29 billion to \$14.90 billion by 2034. However, infrastructure and affordability challenges remain.

- **EDA & IP Development:** Growing from \$12.25B (2024) to \$22.34B (2033); recurring licensing revenue potential
- **Analog / Mixed-Signal / RF Solutions:** Power management ICs, RF front-end for 5G/6G, Industrial IoT interfaces
- **Power Semiconductors:** Global SiC / GaN market growing from \$2.24B (2023) to \$5.7–8B (2030–32); India's first SiC fab in Odisha
- **Chiplets / Packaging, Test & Metrology, Tools & Equipment, Trusted Supply Chain**

Semiconductor Invest Areas — Market Score







Execution Challenges and Strategic Priorities

India's pathway from design strength to manufacturing credibility is constrained by infrastructure, skills and access to know-how. Fabs are resource intensive; they require 169 MWh annually and 8.9M gallons / day of water, so power and water supply are key risks. Besides, logistics consume 14% of GDP. Talent shortages are acute as the country faces the need for 10,000–13,000 fab specialists by 2027.

India competes with hubs like Vietnam and Malaysia, but its differentiation lies in scale, domestic demand, and design talent. To succeed, *India must make reliability a contract, not an aspiration*. It should ensure:

- Reliable infrastructure (power, water, logistics)
- Talent from design to manufacturing
- International partnerships
- Application-specific markets with domestic and export potential



DEMO's Catalytic Role

DEMO connects the dots. It can enhance India's ecosystem by enabling global partnerships, sector-focused sessions, and mentorship. By convening entrepreneurs, investors, and policymakers, onto one platform, DEMO can accelerate India's emergence as a global semiconductor powerhouse.

Conclusion & Way Forward

India's semiconductor ascent is underway, but the next five years will determine whether it becomes a sustainable manufacturing ecosystem or remains a design-only powerhouse. To convert potential into global credibility, India must move from *policy and pilot to execution and reliability*.

1. Build Reliable Infrastructure

Ensure uninterrupted power, water, and logistics for semiconductor fabs and ATMP units. Semiconductor manufacturing must be treated as critical infrastructure, with reliability as a measurable contract, not an aspiration.

2. Deepen Talent Across the Value Chain

Expand programs such as Chips-to-Startup (C2S) and SMART Labs to train 100,000+ engineers in process technology, packaging, testing, and yield optimization alongside business and commercialization skills.

3. Strengthen Global Partnerships

Forge long-term technology and manufacturing collaborations with trusted regions (the US, EU, Japan, and Taiwan) to accelerate process learning and supply-chain diversification.

4. Scale Startups into Product Champions

Bridge design innovation with application-specific markets such as automotive, industrial automation, and defense. Venture and strategic capital must support IP-heavy companies through longer development cycles.

5. Institutionalize Platforms like DEMO

DEMO has proven the power of live demonstrations and ecosystem dialogue. Future editions in Biotech, Cybersecurity, and AI will continue to capture insights, track India's Deeptech readiness, and catalyze collaboration between startups, corporates, and policymakers.

India's semiconductor moment has arrived. Sustaining it will depend on reliability, skills, and partnerships, the foundation of a globally trusted, design-to-manufacturing Deeptech economy.



Data Sources & Methodology

This DEMO Insights Report 2025 – India's Semiconductor Moment is based on a combination of **primary research, curated expert input, and secondary data analysis** conducted by Endiya Partners under the DEMO (Deeptech Exponential Market Opportunities) platform between **May and October 2025**.

1. Primary Research & Expert Input

Stakeholder Interviews:

Direct discussions with 25+ ecosystem participants, including semiconductor startup founders, corporate R&D leaders (Intel, AMD, NXP, Qualcomm, Texas Instruments, Marvell), policymakers from MeitY and DPIIT, and Deeptech investors.

Event-Based Insights:

Data and observations collected during the inaugural DEMO: Semiconductors event at Bangalore International Centre on 22 September 2025, featuring live demonstrations from five startups and panel dialogues with government, academia, and industry experts.

Founder & Investor Survey:

Targeted questionnaire sent to semiconductor and Deeptech founders to gauge capital access, policy visibility, and hiring challenges; response base ≈ 60 organizations.

2. Secondary Data & Industry References

The report synthesizes validated data from globally recognized semiconductor and policy databases:

- **World Semiconductor Trade Statistics (WSTS)** – Global market sizing and 2024-2030 growth projections
- **Semiconductor Industry Association (SIA)** – Policy trends and fab capacity distribution
- **IC Insights, Gartner, and IDC** – Capital expenditure, node migration, and regional investment outlook
- **India Semiconductor Mission (ISM), MeitY, and DPIIT** – Government program data (ISM outlay ₹760 billion; DLI ₹803 crore approvals; project lists and incentive structures)
- **Company Disclosures & Investor Reports** – Public announcements from Tata Electronics, Micron, Tower-Adani, and other approved ISM projects
- **Endiya Partners & Tracxn Deeptech Database (2025)** – Startup funding, headcount, and valuation trends within India's semiconductor ecosystem

3. Analytical Approach

- **Triangulation Method:** Cross-verification of market data using at least two independent global sources plus domestic policy records.
- **Normalization:** Financial data converted to USD at ₹88 = \$1 (FY 2024-25 average).
- **IC Insights, Gartner, and IDC:** – Capital expenditure, node migration, and regional investment outlook
- **Estimation Period:** Historical data 2020–2024; forecasts 2025–2033 based on CAGR assumptions from cited industry models.
- **Qualitative Weighting:** Insights weighted by ecosystem representation (founders 40 %, corporates 30 %, policy 20 %, investors 10 %).

4. Limitations & Disclaimers

All quantitative estimates are indicative and intended for informational purposes. They rely on publicly available sources and expert opinions current as of September 2025. Endiya Partners and the DEMO Platform make no representations or warranties regarding subsequent policy changes, macroeconomic shifts, or commercial decisions based on this report.

Reflections from DEMO

Sudipto Sannigrahi, Managing Director, Z47

"I lead deep tech investing for the fund and it's remarkable to see what Endiya has accomplished through DEMO. Today we witnessed people across policy, industry, investors, and startups coming together for constructive dialogue."

"What particularly impressed me about today's event is how companies focused on demonstrations, a very Silicon Valley approach, versus traditional pitches, especially during the roundtable discussion where we collaborated on building a better deep tech ecosystem, focusing on talent development and government-VC partnerships."

Hitesh Garg, Vice President & Country Head, NXP Semiconductors India

"First and foremost, it was a remarkable event where the entire ecosystem came together. People from academia, industry experts, and startups representing the complete deep tech landscape. The companies showcased products across diverse domains, from quantum computing and deep RF analog to AI applications in RF technology, demonstrating the ecosystem's breadth"

Ajay Prakash Sawhney, Former Secretary, Ministry of Electronics and Information Technology (MeitY)

"I think it's wonderful to have this kind of an event. In all the existing events, there is not enough focus on Deep Tech and bringing a curated set of participants, policymakers, investors, entrepreneurs together to create a meaningful platform."

"For Deep Tech, we need this kind of conversation with experts and various kinds of participants. The problem set has emerged clearly, numerous solutions have been proposed, and I believe a comprehensive plan of action can emerge from this initiative."

Naveen Bishnoi, Marvell Semiconductors

"For sustainable ecosystem evolution, we must ensure equal representation across all stakeholders: startups, VCs, academia, and MNC players. Numerous product opportunities exist for collaborative development and market entry between startups and established corporations."

"The focus on actual product demonstrations rather than slide presentations was particularly effective, showcasing real problem-solving from chip manufacturing through AI implementation to manufacturing deployment."

Vivek Vishwakarma, ThirdAI Automation

"It is excellent that startups participate beyond traditional pitching, it's fundamentally about product demonstration and actual showcasing of capabilities. Events like this are crucial because they complete the engagement cycle, combining pitch presentations with live product demonstrations. These events provide exceptional value not just for founders but also offer dual perspectives from attending investors and industry professionals, creating valuable exposure and learning opportunities."

Gaurab Banerjee, Indian Institute of Science

"These demonstration events and collaborative meetings for semiconductor professionals represent excellent initiatives, enabling knowledge exchange, learning from both successes and failures, and fostering community building within the industry."

DEMO

DEMO (Deeptech Exponential Market Opportunities) is a platform that showcases Deeptech and science-backed innovative companies

For more information: contact@endiya.com



Investing in India's Best Product Startups