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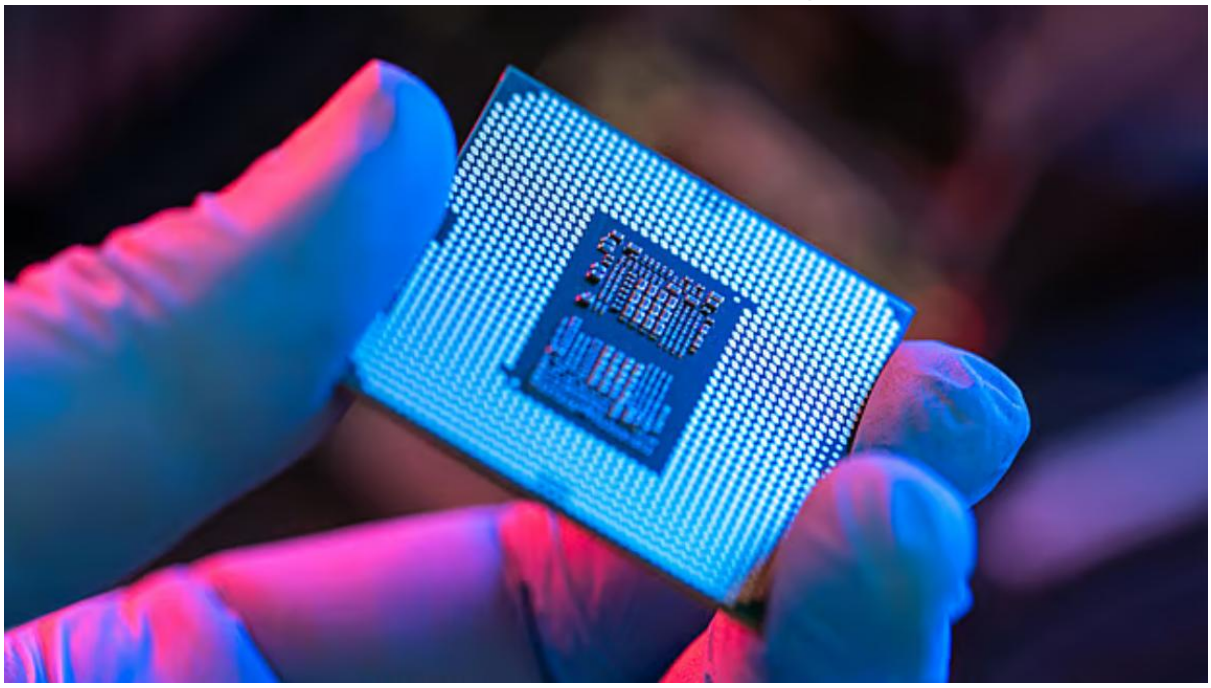
Can strategic acquisitions give India's semiconductor entrants an ecosystem?

Can India fast-track its semiconductor ambitions through global acquisitions? As Tata Electronics and others eye distressed OSAT and chipmaking firms like Malaysia's Globetronics, experts say buying tech, talent, and trust could be the way India's could build a robust semiconductor ecosyste



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Article Content- When Tata Electronics began piling work in Dholera, Gujarat, for India's first semiconductor fabrication plant or fab worth ₹91,000 crore, it was clear that the Tatas were in for the long haul.

Chip making is a far more complex business than software or electronics, two areas in which the Tatas have established a name after beginning as steelmakers. A fabrication plant or an OSAT, short for outsourced semiconductor assembly and testing facility, requires not only significant capital expenditure (30 to 50% of which could be spent on systems that ensure a sterile and dust-free atmosphere) but also process expertise, a trained workforce, deep customer trust, and robust quality systems. And all these have to be in place from Day 1. That's why acquisition becomes more than just a tactical move for a newcomer.

Danish Faruqui, CEO of Fab Economics, notes that Indian players are scouring the world for three 'T's that India does not have for a semiconductor ecosystem.

“The three T’s deemed as critical success factors for greenfield fab or OSAT sites are technology, technology transfer, and talent,” says Faruqui. Fab Economics is a US-based consultancy and investment advisory for new fabs and OSATs.

A Proven Strategy

Semiconductor giants have used acquisitions to leapfrog over the early learning phase since organic growth is slow and capital-intensive.

Devroop Dhar, MD and Co-Founder of Primus Partners, cites China’s aggressive acquisition strategy in the 2010s, using the state-owned Tsinghua Unigroup, a semiconductor conglomerate, to acquire foreign memory and chip design firms.

“Though not all deals succeeded, it set the stage for China’s domestic ecosystem,” says Dhar. “Similarly, South Korea’s SK Hynix and Taiwan’s ASE Technology scaled globally through both organic R&D and calculated acquisitions. ASE’s acquisition of Siliconware Precision Industries was instrumental in expanding its OSAT leadership.”

Japan’s Rapidus, founded in 2022 to set up a mega 2nm fab, bought IBM’s 2nm technology and sealed strategic partnerships, most recently with Quest Global in March 2025.

Manish Rawat, semiconductor analyst at TechInsights, explains, “Acquiring overseas companies helps build credibility within global supply chains, a major challenge for new entrants. However, successful value extraction depends on the acquiring firm’s financial resources, patience, and ability to effectively integrate the new operations.”

For Indian conglomerates, the correct acquisition can act as “capability accelerators,” as it provides immediate access to global intellectual property, engineering talent, operational workflows, and crucial customer relationships.

The Technology Play

Chip manufacturing is a highly specialised and precision-driven industry, mastered by only a handful of countries worldwide. This is precisely why the Indian government made it mandatory for applicants under the 2021 India Semiconductor Mission to have established technology partners so that they have access to proven expertise and reduce execution risk.

India’s only approved chip fabrication project under the ISM is Tata Electronics’ fab in partnership with Taiwan’s Powerchip Semiconductor Manufacturing Corp (PSMC). PSMC will support Tata in building and operating the facility and provide technology support for mature-node chips. However, there has been no public announcement regarding Tata Electronics' entry into a similar technology partnership for its chip packaging (OSAT) facility.

In contrast, CG Power & Industrial Solutions has formed a joint venture with Japan’s Renesas Electronics and Thailand’s Stars Microelectronics for its OSAT plant. In a move

aligned with vertical integration and demand aggregation, CG Power has also acquired the radio frequency (RF) business of Renesas in India.

Sanjay Kumar, VP of semiconductors at Kearney, points out that the technology development cycle in semiconductors is at least two to three years, due to the learning required to bring down the defects in manufacturing and produce economically viable technology.

“For complex packaging technologies such as CoWoS, an OSAT needs to run hundreds of thousands of wafers to learn and reduce the manufacturing defects to produce economically viable technology. Without customers' input, those learnings are hard to come by,” adds Kumar. Kearney is a US-based global strategy and management consulting firm.

“It is not surprising that Tata Electronics could be eying semicon segment acquisitions,” adds Faruqui. Manufacturing-grade technology can come only from an established semiconductor player with the required IP and legal rights to license it to India.

What’s in it for the established semiconductor players? Strategically, semiconductor businesses are financially stressed and welcome the revenues from licensing technology and/or expanding packaging capacity with new partners to capture excess growth for which they may not have the ready capacity.

Reports indicate that Tata Electronics is in talks to buy Globetronics Technology Bhd, an OSAT player based in Penang, Malaysia. Globetronics has suffered multiple financial blows as recent as 2024, its auditor resigned, and key public and private stakeholders have rolled back their positions. The turmoil led to boardroom changes, prompting Globetronics to develop strategies for new partnerships and revenue streams.

Globetronics is rationalising its low-margin legacy business and pursuing new programmes, including technology licensing, with its existing and new partners. While the company is not yet fully out of the woods, the game changer could be the fruition of its active engagement with potential partnerships in China, India, and Taiwan

Faruqui says Globetronics could be a strategic acquisition for Indian companies eyeing growth in OSATs. “In Q4 of 2024, Globetronics Technology Bhd enriched its packaging portfolio by forming a partnership with ChipMOS. As a result, many new and emerging players planning OSAT projects are targeting Globetronics Technology for technology licensing,” he says.

ChipMOSTechnologies, a provider of semiconductor assembly and testing services headquartered in Taiwan and listed on the Taiwan Stock Exchange and the US Nasdaq, specialises in memory and mixed-signal integrated circuit testing, as well as advanced packaging. Globetronics’ partnership with ChipMOS has widened its ability to serve the market.

Easier said than done

While India's semiconductor goals are similar to those of the US and EU CHIPS Acts, the country lacks the legacy infrastructure and talent base critical for seamless technology transfer.

For one, Indian players lack the capabilities necessary for 'site-level technology transfer' from established international players.

Faruqui says semiconductor manufacturing or packaging technology requires a strict 'copy exact' transfer process between the established players and new entrants.

"This 'copy exact' transfer process needs to be applied at the site level... and it is a multi-year process. Key capabilities across people, processes and systems at the receiving/new Indian site are required as success factors for successful site-level technology transfer," says Faruqui.

Without these in place, global manufacturing technology partners are reluctant to engage, fearing delays, instability, and a drain on their engineering resources.

Talent shortage

The industry faces an acute shortage of trained semiconductor talent. While the Indian government has set out to train 85,000 engineers, the new fabs and OSATs need trained engineers *now*.

Tata Electronics' partnership with PSMC will enable the company to train its talent. The company was sending engineers to Taiwan to be trained by PSMC, which would enable Tata Electronics engineers to gain hands-on experience, according to a source familiar with the details of the Tata Electronics partnership with PSMC.

Rawat of TechInsights says acquiring OSAT facilities or legacy fabs offers Indian engineers hands-on training in manufacturing best practices, quality control, and process engineering.

"By working through real-world operational challenges, engineers develop strong problem-solving abilities and a culture of innovation," Rawat says. Indian talent gets to experience global semiconductor ecosystems, and the acquired assets become incubators for building a skilled domestic workforce.

Dhar of Primus Partner adds, "The 'apprenticeship abroad' model, for example, in aviation, helped India's engineers to gain deep expertise by working at global MRO hubs before domestic facilities matured. For semiconductors, this could translate to filling the talent gap, where engineers may rotate between overseas facilities and Indian units to transfer knowledge."

Customer Relationships

An OSAT or fab often comes with an existing roster of customers—many of whom operate on long-term contracts. This can give the acquirer a revenue pipeline from day one, while also signalling to the market that it can meet stringent global quality and delivery standards.

“How beneficial the acquisition could be for demand aggregation and continuity of long-term agreements depends on strategic curation of M&A contract terms and post-merger integration,” says Faruqui.

But Dhar of Primus Partner highlights that client retention often depends on post-acquisition continuity and performance. If the acquirer maintains quality, delivery timelines and operational transparency, these relationships tend to persist and can even expand with new offerings.

Mitigating Risk

Owning overseas manufacturing facilities in geopolitically stable or strategically aligned countries can significantly benefit Indian firms by diversifying risk and enhancing supply chain resilience, Rawat says.

“This approach helps bypass critical chokepoints such as China-Taiwan tensions or US export restrictions, securing alternate sources of key components and access to advanced technology ecosystems,” he says.

Geographic diversification also enables Indian companies to better serve global clients through localised manufacturing. Managing overseas assets also introduces regulatory compliance and operational challenges in foreign jurisdictions, necessitating strong local management and robust legal safeguards to mitigate risks effectively.

As India moves forward in its semiconductor journey, building capabilities from scratch will take time. While greenfield projects lay the foundation, strategic acquisitions—especially of distressed yet technologically competent players—can fast-track capability building, talent development, and market access. But success will depend on careful integration and long-term vision.