

India and Semiconductor Industrial Policy

Third time Lucky?

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The Present

- ▶ All top-25 fabless companies by revenue have design centres in India
 - ▶ Indian value addition is under-counted because of HQ-based data. PaxSilica or not, India will remain a major node.
- ▶ Zero commercial CMOS fabrication capabilities
- ▶ Research and small-volume capacity for defence and strategic needs exists
- ▶ Insignificant testing and packaging presence thus far.
- ▶ Specialised gases and materials firms present in adjacent sectors

The Past Long Ago

Version 1.0: By the Government and For the Government

- ▶ BEL made its first germanium transistors in 1962 with the help of Philips. Got tech transfer from RCA in the 1980s. SCL began producing 5um ICs in 1984.
- ▶ Rock's Law comes knocking
- ▶ No incentive to reinvest large amounts of capital
- ▶ No internal competition
- ▶ Trade barriers

The Recent Past

Version 2.0: The Unease of Doing Business in India

- ▶ Texas Instruments' design office is the first MNC in Bengaluru (1985)
- ▶ Fab City OSAT planned in 2006 with AMD + SemIndia + Flextronics
- ▶ Jaypee Group + Towerjazz + IBM (2014); HSMC + STMicro + Silterra (2014); Cricket Semiconductors (2015)
- ▶ Learning:
 - ▶ Uncertain tax and policy environment
 - ▶ Poor infrastructure
 - ▶ High trade barriers

What's Different this Time

- ▶ Upfront capital support. Policy update in late 2022.
- ▶ Collaboration between state and union governments
- ▶ Efforts across the entire value chain (5 components)
- ▶ Internalising “Metacriticality”

Approved and Under Construction Projects (as of Dec 2025)

- ▶ 1 CMOS Chip Fabrication plant (<10% of India's demand)
- ▶ 1 compound semiconductor fabrication and packaging plant; 8 Assembly, Test and Packaging plants
- ▶ 0 display fabs approved
- ▶ upgrading of the government-owned 180nm fab for strategic uses
- ▶ Chip design projects from 24 companies approved under P-DLI scheme with a total project cost of ~ 700 crore (goal is to support 100 start-ups in their go-to-market strategy by Dec 2026)
- ▶ A separate programme to develop 85000 industry-ready professionals in 5 years

Inferred priorities

- ▶ Build base capabilities (hence the fab, ISM2.0)
- ▶ Reduce imports from China (hence display fabs)
- ▶ Capitalise on strengths (hence the DLI, OSAT, compound semiconductor fab)
- ▶ Reduce strategic vulnerabilities (hence the fab)

What is Working and What Isn't?

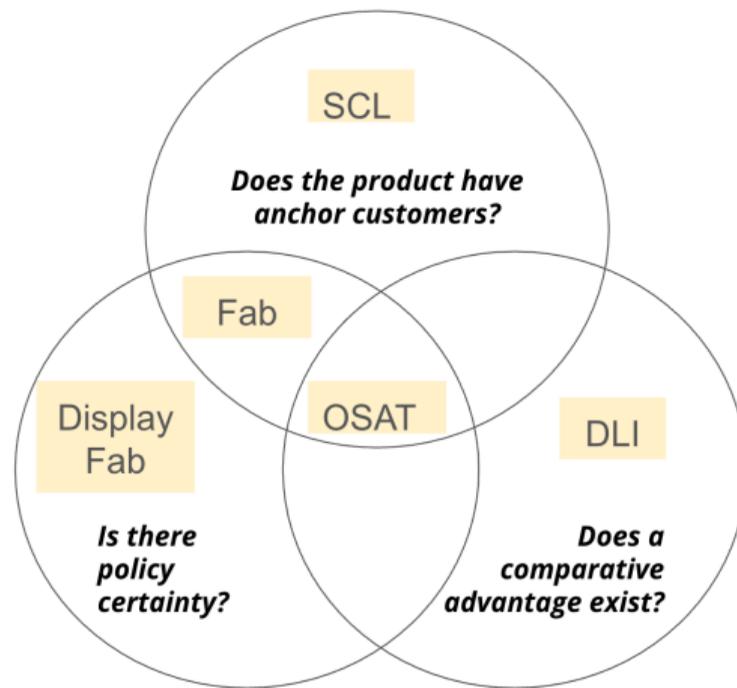


Figure 1: A framework

Implications

- ▶ Industrial Policies end up playing catch-up
 - ▶ risk of competing in segments which might face the China shock
- ▶ Self-sufficiency rhetoric gains more traction than strategic indispensability
- ▶ Brick-and-mortar, jobs are politically more relevant
- ▶ Risks of spreading thin