Australia Vietnam
Policy Institute

AVPI Sector Brief: Semiconductors

Vietnam's Vision for Semiconductor Manufacturing

Semiconductors are the electronic 'engines' underlying almost all technology applications. As one of the most complex products to develop (over 400 separate process steps) semiconductors represent both a key industry and enabler for other industries. With a rise in barriers to trade and an uncertain global policy environment, national governments have begun to diversify their supply chains in key industries including semiconductor chip manufacturing. Vietnam has a competitive edge to take advantage of this opportunity: it has an existing semiconductor industry, a young and skilled workforce, and proximity to other semiconductor hubs.

In 2025, construction commenced on Vietnam's first chip factory, entirely led by domestic technological expertise with an aim to produce 100 million chips annually by 2027.

The vision for Vietnam's domestic semiconductor manufacturing industry was outlined by the Vietnamese Government through Decision No. 1018/QD-TTg in 2024, which outlines specific milestones to 2050:

2030

- Attract 100 design companies
- Establish one small-scale semiconductor manufacturing plant
- Establish 10 packaging plants
- Industry revenue: USD $25 billion
- Industry workforce: 50,000

2040

- Expand to 200 design companies
- Expand to two manufacturing plants
- Expand to 15 packaging facilities
- Industry revenue: USD $50 billion
- Industry workforce: 100,000

2050

- Expand to 300 design companies
- Expand to three manufacturing plants
- Expand to 20 packaging facilities
- Industry revenue: USD $100 billion
- Industry workforce: appropriate to need

The Australian Context

Australia began national capacity building in the semiconductor industry in 2023. Despite strengths in semiconductor fabrication research and development, it relies heavily on foreign-controlled microchip technology with the first Sovereign Semiconductor Manufacturing Facility not scheduled for completion until late 2027. Despite significant critical mineral resources and a strong mining industry, as of 2025 both Vietnam and Australia rely heavily on offshore processing. Policies to address this in the Australian context include the Critical Minerals Strategy 2023-2030 and the 'Future Made in Australia' Act 2024 which aim to strengthen Australia's critical minerals refinement capacity and secure its position in the global supply chain.

The Australian Context

The United States

Under the International Technology and Security Innovation (ITSI) Fund and the U.S.-Vietnam Comprehensive Strategic Partnership, Vietnam's relationship with the United States focuses on the semiconductor supply chain.

Industry Leaders

Major corporations such as Samsung, Intel, NVIDIA and Amkor Technology have invested significantly in Vietnam, focusing on chip testing, assembly, and design services.

Universities

Institutions such as Arizona State University and RMIT University Vietnam play a significant role in training the workforce for Vietnam's growing semiconductor sector.

Key Challenges Facing Vietnam

Infrastructure, Water and Energy Reliability

Advanced fabs require ultra-pure water, stable power, and clean tech zones. A World Bank report warned that Vietnam could face regional water stress by 2030, particularly in industrial clusters. Vietnam ranks 56/99 on the world energy index.

Workforce Shortage and Skill Gap

As of 2025, Vietnam's semiconductor workforce comprises 6,000 engineers, 44,000 short of the 2030 target. This is consistent with the global skilled workforce shortage in the semiconductor industry.

IP Protection and Industrial Regulation Clarity

Concerns regarding regulatory transparency and enforcement, and IP protection are a barrier to FDI in Vietnam. This could pose a significant hurdle to developing R&D partnerships.growing semiconductor sector.

Opportunities for Collaboration

Friend-Shoring

Securing the supply chain from rare-earth and critical material processing to advanced chip production with other international partners, e.g. the US.

Training, R&D and Prototype Collaboration

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Advice on Water Scarcity Initiatives

Sharing experiences and strategies from Australia's water-scarce manufacturing context.

Advice on IP and Industry-Specific Legislation

Sharing best practice and expertise from Australia's rich R&D context.

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