

A 'FAB' WAY TO CONDUCT INDIA-JAPAN TECH DIPLOMACY

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'This collaborative approach accelerates both innovation and the development of cutting-edge solutions' | Photo Credit: Getty Images

India and Japan, in July 2023, agreed to collaborate on semiconductors in a bid to create a more resilient supply chain for this critical technology and work together for the joint development of the semiconductor ecosystem. The partnership will focus on five areas: 'semiconductor design, manufacturing, equipment research, establishing resilience in the semiconductor supply chain, and talent development', paving the way for government-to-government and industry-to-industry collaborations.

The deal comes in the wake of the rapid expansion in the semiconductor industry, particularly the importance of specialised chips, which has prompted the need for growing the pool of talent available in the industry alongside increasing the number of semiconductor fabrication plants (fabs). The partnership fosters the exchange of technical knowledge, research, and innovation between the Indian and Japanese semiconductor industries, facilitates technology transfer, and enables Tokyo and New Delhi to stay at the forefront of semiconductor advancements.

Both nations have aligned their policies to support semiconductor manufacturing and research. India's "Make in India" initiative and Japan's "Society 5.0" vision share the goal of technological self-reliance and innovation-driven growth. Bilateral agreements have been signed to promote technology transfer, cooperation in semiconductor research, and reciprocal trade in semiconductor-related products.

The collaboration stands as a testament to the power of strategic alliances and technological synergy. Both nations recognise the critical importance of semiconductor technology in driving innovation, economic growth, and national security. Japan, with its advanced semiconductor industry, has long been a global leader in chip manufacturing and research. India has a growing information technology sector and a burgeoning demand for semiconductor products across industries. The convergence of these strengths has laid the foundation for a mutually beneficial collaboration.

Supply chain disruptions and geopolitical tensions, which are of particular significance in the Indo-Pacific region, have underscored the need for diversifying semiconductor supply chains and cross-country collaboration. Joint research initiatives enable the pooling of resources and

expertise to tackle complex challenges in semiconductor design, manufacturing processes, and materials science. This collaborative approach accelerates both innovation and the development of cutting-edge solutions. The partnership also emphasises human resource development through skill exchange programmes, workshops, and training.

India's strength in semiconductor design and packaging offers scope for it to join forces with leaders in the industry. The agreement with Japan follows close on the heels of the charting of a technology partnership for the future between the United States and India which also covers investment, innovation, and workforce development, facilitating the long-term strategic development of complementary semiconductor ecosystems. As part of the agreement with Washington, New Delhi is set to sign an agreement with Georgia Tech University. All this also follows from investments by Micron Technology and Applied Materials to set up a semiconductor unit and a research and development centre.

The India-Japan partnership is poised to play a pivotal role in shaping the global semiconductor landscape. As technology continues to evolve, their collaboration will remain dynamic, addressing new challenges such as semiconductor miniaturisation, AI integration, and quantum computing. This partnership will also have far-reaching implications for the global technology ecosystem and the dimensions of geopolitical partnerships in the Indo-Pacific. Coming in the wake of the U.S.'s CHIPS and Science Act of 2022, which places strategic curbs on the expansion of semiconductor manufacturing by countries posing a direct threat to the U.S., including China, the bilateral agreements of both Washington and Tokyo with New Delhi demonstrate the consolidation among like-minded partners in the Indo-Pacific towards critical technologies and the acknowledgment of the same vis-à-vis geostrategic and national security concerns.

In January 2023, Japan and the Netherlands joined the U.S. in restricting exports of semiconductor manufacturing materials required in the making of advanced chips to China. Tighter export controls on China's chip manufacturing ability is among the Joe Biden administration's key diplomatic pursuits in the Indo-Pacific. Although the move is expected to affect the sales of Japanese chip companies which rely on sales to China, Tokyo is on board because of the geopolitical concerns over China's expanding chip-making capabilities. This is also why the partnership with India is significant as a means of diversifying the landscape of the semiconductor industry.

Both agreements indicate the confidence placed in India by the two Quad countries (The Quad has India, Japan, Australia and the U.S.) and also signal the coming of age of India's own capabilities in the development of semiconductors and related technologies. By combining Japan's technological prowess and India's innovation and design capacities, the collaboration on semiconductors paves the way for a future characterised by advanced electronics, enhanced connectivity, and a shared commitment to pushing the boundaries of technological excellence.

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