

The Philippines: Your Ally in the Global Chip Race

As demand far exceeds supply, semiconductors are now often described as the new oil. Companies across the globe scramble to increase investment in production capacity to ease the chip shortage, while average people in the market for a car, a laptop or the latest smart phone become painfully aware of how chips figure prominently in everyday lives and how the lack thereof could grind entire industries to a halt.

With surging demand for consumer electronics driven by the pandemic, as well as supply-side disruptions including a fire at a fabrication unit in Japan, a drought in Taiwan, the unprecedented cold snap in Texas, and the US-China trade tensions, the severe supply crunch is far from over.

But while these disruptions reconfigure global supply chains, they also sped up companies' digitalization and technology adoption. Experts say that with higher digitization, the wireless market's 5G upgrade cycle in the wireless market, and the need for more advanced chips, equipment manufacturers still stand to gain.

To meet the challenge and benefit from the shortage trend, companies turn to supply chain diversification across multiple countries and ensure alternate sources of supply by fast-tracking investments around the world.

Rising to the challenge when the chips are down

To reduce vulnerability to bottlenecks and localized disruptions, companies are changing their sourcing strategies to pursue a more diverse set of suppliers in multiple regions and greater geographical distribution of production.

The Philippines has long been an indispensable part of the electronics global value chain and is a center of excellence for electronic manufacturing services for a number of reasons. Its geographic location is a critical entry point to the ASEAN market through its international shipping and air lanes. The country has a young, well-educated, and English-proficient population. Intellectual property protection and international labor laws for women and children are strictly adhered to. These qualities allow the Philippines to produce world-class workers with cost-competitive wages that greatly complements its fast-growing economy.

The country is a successful hub for semiconductor manufacturing services (SMS) with strengths in assembly, test and packaging; and electronics manufacturing services (EMS) specializing in complex PCB assembly, box build and systems assembly, and growing capabilities in design development and original design manufacturing (ODM). The Philippines' key products are hard drives and semiconductors. It supplies the world with 2.5 million hard drives per month and captures 10% of the semiconductor manufacturing services global supply.

It is also home to about 500 semiconductors and electronics companies, including seven out of the world's top 20 chipmakers: Texas Instruments, Philips, Fairchild, Analog, Sanyo, On Semi, and Rohm; as well as four of the largest producers of hard drives: Hitachi, Toshiba, Fujitsu, and NEC. Other names include Continental, Amkor, Tsukiden, IMI, EMS and Ionics producing sensors, communication radars, telecommunication, auto and electronic products.

Particularly strong in the test, packaging, and assembly of semi-conductors, the Philippine semiconductor industry has established a dedicated center to support integrated circuit (IC)

design. It is ready to become the home of competitive IC design companies serving customers worldwide.

Path to moving up the value chain

The Philippines is poised to move up the value chain as it builds capacity to undertake more design and development work for cutting-edge products and technologies in healthcare, automotive and aerospace, including autonomous vehicle batteries and SMART wearables.

The government's flagship industrial strategy known as Inclusive Innovation Industrial Strategy or I3S, led by the Department of Trade and Industry (DTI), aims to develop globally competitive and innovative industries. It will strengthen linkages to domestic and global value chains using industry 4.0 technologies to create new products, services and business models. It also seeks to create new products or solutions in areas like e-gaming, smart assistants, digital health, smart buildings & smart home technology, connected and resilient technology, with the use of technology building blocks such as voice recognition, AI, AR, robotics, 5G Connectivity and IoT.

In partnership with UNIDO, the government is also drafting Industry 4.0 roadmaps for electronics, automotive, aerospace and agribusiness. Regional Inclusive Innovation Centers (RIICs) are also being built to link innovation stakeholders with entrepreneurs with the goal of accelerating the commercialization of R&D investments.

Recognizing that the future of transportation will be autonomous, connected, electric and shared, the Philippines is positioning itself as an ASEAN regional manufacturing hub for electronic vehicles (EVs) and EV parts. Given its strengths in electronics and automotive manufacturing, the focus is on auto electronic components such as advance driving assistance system, high-precision sensors, AI technology, AR/VR, electric motor powertrains, battery technology, energy storage systems, engineering services, and outsourcing. In the domestic market alone, the government estimates 6.6 Million electric vehicles on the Philippine roads by 2030.

The government works closely with key partners in the private sector, including the **Semiconductor and Electronics Industries in the Philippines Foundation, Inc. (SEIPI)**, composed of 350 members who are multinational and Filipino-owned semiconductor and electronics companies in the Philippines. Together they launched the roadmap PATHS (Product and Technology Holistic Strategy), which identifies specific products and technologies the industry must pursue during the next five years to increase its share in the global market. As part of the roadmap, SEIPI is developing the Science and Technology Center (STC) to undertake quality research and accelerate the development of the IC Design sector.

This year, SEIPI also created its Industry 4.0 Technical Working Group (TWG) composed of Engineering and Information Technology experts to guide the acceleration of digital transformation among member-companies. Additionally, SEIPI launched the Wire Harness Cluster TWG, which consists of service providers and end-users in the wire harness sector with the advent of EVs.



***Our people deliver.** We provide the high standards of quality and productivity at competitive costs that this global industry demands.*

Upskilling labor and improving infrastructure

The government, private sector, and the academe work hand in hand for reskilling and upskilling workers to address the changing needs of the industry. With over 790,000 college graduates, 200,000 of which are in the engineering, information technology and science-related fields, the Filipino workforce boasts of intellectual talent, unparalleled command of the English language, and design and innovation capability through research and development.

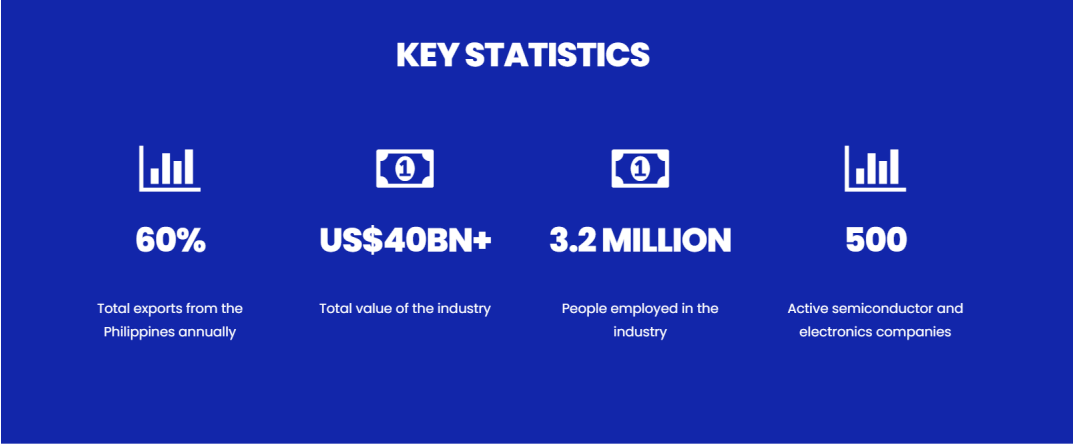
SEIPI formed the Sector Skills Council (SSC), under the A Future that Works (AFW) project in partnership with the Philippine Business for Education and Australia's Department of Foreign Affairs and Trade. The SSC's goal is to address mismatch of jobs and by developing the skills roadmap and implementing the business development plan.

SEIPI also collaborates with several industry organizations in China, France, Singapore, Taiwan and the USA for events and trade promotions, B2B, U2U, and R&D projects. One of SEIPI's international partners is ACSIEL Alliance Électronique, the biggest electronics industry association in France. SEIPI has also partnered with Singaporean organizations like SEMI Southeast Asia, Singapore Industrial Automation Association, and LUX Photonics Consortium, a joint initiative of Nanyang Technological University (NTU) and National University of Singapore (NUS).

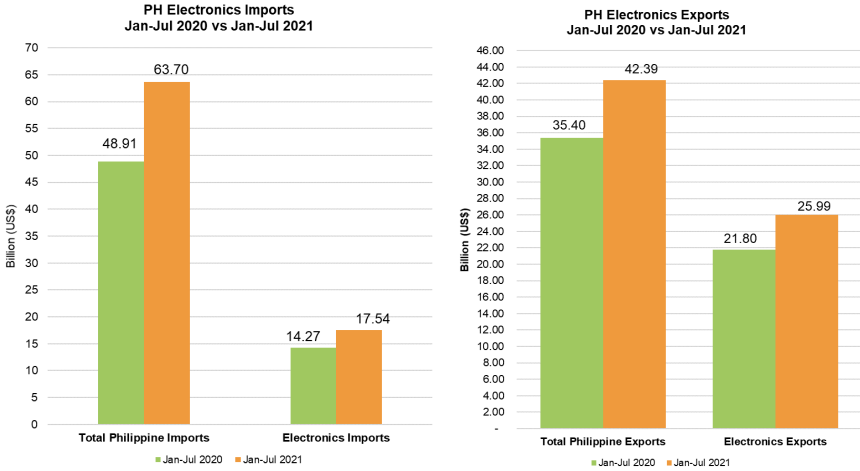
In terms of infrastructure, several transmission backbone and cable landing stations are in place all over the country. Major Philippine telcos have also announced launching enterprise grade IoT services. The Philippine Department of ICT is also working towards provide last-mile connectivity across the country. Fiber optic roll-outs, creation of 5G mobile networks, and investments in telecommunication/cell site towers also increased starting last year.

Revenue driver of the manufacturing industry

The sector is the primary revenue driver for the manufacturing industry. Helping the Philippine economy weather the pandemic, electronics exports reached US\$39.7 billion in 2020, which is 62% of total Philippine exports. As of July 2021 year-to-date, cumulative exports in the Philippine electronics industry reached US\$ 25.99 billion, or 61.3% of the US\$ 42.39 billion total Philippine commodity exports.



For electronics exports alone, the sector contributes 10% to the Gross Domestic Product (GDP) of the Philippines. This increases to over 20% of the country’s GDP when we consider other sectors that depend on the electronics industry. This industry is considered as the third largest contributor to country’s manufacturing Gross Value Added (GVA), accounting for 10.8% of the total manufacturing GVA, and employs over 3 million direct and indirect workers.



The industry continues to nurture its trade ties with other countries. In July 2021, the top exported product is components/devices (semiconductors) and majority of these went to Hong Kong, China, Singapore, USA, and Japan.

Weathering the pandemic

Despite the implementation of the nationwide community quarantine, the industry was allowed to operate at 100% capacity while observing health and safety protocols. Private companies applied resourceful solutions that ensured workforce safety, such as modifying work stations and dining halls to ensure social distancing, using modified shuttles with seat partitions for employee transportation, telecommuting, and establishing various specialized on-site health facilities.

To reach its potential in attracting FDIs, the government passed the Corporate Recovery and Tax Incentives for Enterprises (CREATE) Act, a major game changer that rationalizes and offers more incentives to investors making the investment climate in the Philippines significantly more attractive. It will grant qualified registered business enterprises with 4-7 years of income tax holiday, a choice between enhanced deductions or up to 10 years of 5% gross-income earned taxes, duties and VAT exemption, along with other incentives.

RCEP and more cooperation in Southeast Asia

In an integrated global supply chain, free trade is crucial to move not only products, but also materials, equipment and intellectual property and perform each stage of production optimally. Since the sector is capital- and R&D-intensive and particularly exposed to bottlenecks and political risks, it needs nuanced policies that strengthen supply chain resilience and expand open trade.

The Regional Comprehensive Economic Partnership (RCEP) fosters greater cooperation in the region with closer integration of economies and a more stable and predictable rules-based system of trade. With 10 ASEAN Member states and its five FTA partners (Australia, China, Japan, Korea and New Zealand), RCEP carries significant economic weight. Accounting for almost a third of global 2019 GDP with a combined GDP of \$25.8 trillion, the trade bloc is bigger than the United States-Mexico-Canada Agreement and the European Economic Area.

Make it happen in the Philippines

In an investor survey on why they choose the Philippines, the overwhelming response was that Filipinos are known for their “can do” attitude and “make it work” mindset. They use their talent and dedication to survive and thrive despite adversities. This unique Filipino trait and mindset inspired the Philippine Board of Investments’ “Make It Happen in the Philippines” campaign, which covers 17 target markets and priority sectors namely electronics, automotive, aerospace, IT-BPM, copper-nickel products, and recently hyperscalers.

With combined efforts of the government and private sector, the Philippines is set to play a key role in the global supply chain for electronic goods. As we expect to see more reshuffling of global supply chains in the future, the Philippines with the right infrastructure, regulatory environment and other competitive advantages fit the bill as a choice partner to companies who want to diversify their manufacturing footprint. With its ability to serve different markets in a fragmenting world, the Philippines can help you turn the pandemic and the chip crisis into an opportunity.

About the Authors

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With more than 40 years of experience in industrial policy, planning and formulation, preparation and evaluation of project feasibility studies, supervision of projects, investments promotion and marketing and formulation and administration of investment incentives, Ms. Cayas currently serves as a Governor of the Philippine Board of Investments under the Department of Trade and Industry (DTI).

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He is the President of Semiconductor and Electronics Industries in the Philippines, Inc. (SEIPI), the association representing the electronics industry, which makes up US\$29B or 51% of total Philippine exports and directly employs 344,449 employees. Dr. Lachica has over 30 years of senior management experience in semiconductors, electronics, and consumer goods manufacturing, 16 of which were in front-end semiconductor wafer fabs in Silicon Valley.

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