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ASEAN's Electronics Sector: Facing the Disruptive Trends

By Phidel Vineles

Synopsis

ASEAN should have a stronger electronics sector to remain a competitive and dynamic region. The greatest challenge facing ASEAN is the impact of disruptive technologies. Can the region adapt?

Commentary

ELECTRONICS IS the largest export sector in ASEAN, equivalent to 25 percent of the region's total exports in goods. According to the ASEAN Secretariat, the bulk of the world's consumer electronics comes from the ASEAN region. Moreover, over 80 percent of the world's hard drives are produced in ASEAN countries.

As such, ASEAN should be responsive to the latest trends and developments in the global economy so as to remain competitive. For instance, the rising labour cost in China could stimulate the growth of the ASEAN electronics sector. Low labour cost in ASEAN will attract more foreign direct investments (FDIs) from multinational companies (MNCs). However, the emergence of disruptive technologies such as automation and robotics could also threaten the manufacturing opportunity in the sector.

Electronics Industry: Engine of Growth

How important is the electronics industry in ASEAN? Electrical and electronics (E&E) is one of the region's most important sectors, directly employing more than 2.5 million workers in ASEAN, according to the International Labour Office (ILO). It is also described as a mainstay of the region's economic growth.

In Singapore, for example, Minister for Trade and Industry S. Iswaran said that the

country's electronics manufacturing sector is expected to create a total of 2,100 new jobs for professionals, managers, executives and technicians (PMETs) by 2020. Moreover, the sector also accounted for 4.4 percent of Singapore's GDP last year, generating a total of S\$90 billion in manufacturing output.

Other countries in the region also show great potential in the sector. According to the ASEAN Secretariat, Thailand's electronic assembly bases consisted of over 2,300 companies and employed 400,000 workers. Thus, the country is recognised as a global leader in production of integrated circuits, semiconductors, and hard drives. Thailand is also the world's fourth largest producer of refrigerators and second largest for air-conditioning units.

The Philippines is also a top producer of hard drives and semiconductors. ASEAN Secretariat data shows that the country is presently supplying the world with 2.5 million hard drives per month and also represents 10 percent of the world's semiconductor manufacturing services.

Malaysia's electronics and electrical sector has more than 1,695 companies with a total investment of US\$35.5 billion, which could increase further through investment in research and development (R&D). Vietnam's electronics industry is the third largest in ASEAN and the country is the 12th largest exporter in the world, according to advisory firm Dezan Shira & Associates.

The largest ASEAN economy, Indonesia, is also an electronic manufacturing hub with more than 250 companies and has attracted large corporates, according to its Investment Coordinating Board. Myanmar is also set to compete in labour-intensive industries, taking advantage of its low employee costs.

Technology Trends

Looking ahead, it is important for ASEAN member states to anchor their policies on technology trends that are likely to transform the E&E sector. ILO said that robotic automation, 3D printing and the Internet of Things (IoT) will have significant impacts on the electronics industry. Policymakers across the region should introduce policies that will help raise labour skills to ensure that the E&E sector will take advantage of its growth potentials.

According to ILO, more than 60 percent of workers of the E&E sector in Indonesia, the Philippines, Thailand and Vietnam are at high risk of automation. Moreover, although it is said that people exceed the capabilities of robotic automation in overall assembly, robotic automation is continuously replacing lower-skilled tasks like packaging and assembling jobs.

Hence, policymakers across the region should encourage youths to pursue their education in science, technology, engineering and mathematics (STEM). Doing this will allow ASEAN member states to possess higher skilled labour.

Robotic automation's impact on the E&E sector must be examined to determine what policies should be implemented in the region. The Boston Consulting Group (BCG) noted that there are four groups in the E&E sector that will account for 75 percent of

robotic automation installations by 2025: electrical equipment, appliances and components; computers and electronic products; transport equipment; and machinery.

Need to Study Trends

This projection is worthy of study by ASEAN given that some of its member states have gained prominence in the said industry groups. For example, Thailand is the world's second largest producer of air-conditioning units.

The deployment of 3D printing throughout ASEAN's E&E sector is another technology trend. 3D printing's future adoption should not be a surprise because there are reports that 3D printed circuits will become commercially available next year, according to ILO. The challenge for ASEAN is to increase its human capital investment, considering that the application of this technology requires high labour skills.

The rise of the Internet of Things (IoT) is opening up new opportunities for the region. ILO said that IoT is projected to provide significant opportunities for semiconductor companies because this technology will stimulate demand for connectivity, memory and sensors.

IoT is also seen to ramp up the global annual revenue of the semiconductor industry, especially since this technology could help the E&E sector produce innovative products like IoT integrated consumer devices.

Towards a Stronger Sector

For a stronger E&E sector, ASEAN should include the emerging technology trends such as 3D printing and IoT as part of its key areas of cooperation. Such cooperation should be through investment and capacity building. Regional investment activities must be devoted to strengthening human capital to acquire high labour skills for high value-added activities.

This will help facilitate the growth of the E&E sector through higher-value activities and technology upgrades. It is important to underscore that failure to invest in education and skills training might drive FDIs out to other countries.

Capacity building must also be developed among member states to enhance their electronics skills base. It could be in the form of building ASEAN centres of excellence in the areas of innovation, product design, and research and development (R&D). Collaboration involving technical vocational education and training (TVET) institutions across the region is also important, apart from information sharing among member states.

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