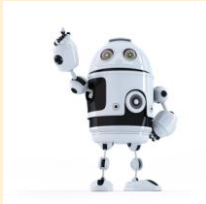




Robotics...new challenges to watch out for in Thailand



Highlight

Robotics has traditionally been used in the manufacturing sector, but the service sector will likely increase its use of robotics in the future. In the next couple of years global demand for robotics may double partly due to changing consumer behavior. Moreover, the manufacturing sector needs a solution to the labor shortage problem and to boost productivity in the face of increased competition. Going forward, challenges for Thailand's robotics industry may arise as China's industrial robotics is becoming an influential player in the industry. Given that, EIC suggests Thai players quickly form an alliance with the Chinese and other key regional players in Asia such as South Korea, Japan, and Taiwan. Moreover, opportunities and potential for Thailand are particularly evident in service robotics, with a focus on serving niche markets and increasing exports.

Service sector robotics will gain momentum in the future while robotics is currently mainly used in the manufacturing sector.

Less sophisticated processes can now rely on automation using robots to perform tasks for which they are programmed. The more sophisticated ones employ artificial intelligence (AI), which allows them to think and reason. During the past three years, average global sales of service and industrial robots were 5 million and 0.2 million units, respectively. According to the International Federation of Robotics (IFR), the use of robots will almost double by 2018. Changing consumer behavior is one factor, attributed to the increased popularity of service robots. Consumers have become interested in using robots to replace certain tasks because they seek more convenience, for labor-intensive tasks, or for risky activities. Examples include vacuum cleaners, robots to assist the elderly, and search-and-rescue robots or those dealing with bombs. As for industrial robots, demand drivers will come from five main industries that are potentially robot-intensive: the automotive, electronics and electrical appliances, metals, rubber and plastics, and food industries. Robots in these five industries now account for 85% of total robotic applications around the world (Figure 1). Robots have played a role in alleviating labor shortage problems and improving industrial competitiveness by raising productivity. Indeed, China is the number one robotics market, with the world highest demand for industrial robots. Chinese demand accounts for more than 30% of the market and is still on the rise.

China is now set to be the world's major robot producer and continues to influence this industry. Despite the highest robotics sales in the world, China's robot density (the ratio of robot units to employees) is still small. In 2015 robot density in China was only 36 units to 10,000 employees, just half the world's average ratio.

In fact, China's ratio is not within top the 20 automation countries (Figure 2). The Chinese government recently declared a goal of raising its robot density 300% by 2020. This will bring China's robot density to 150 units per 10,000 employees. Moreover, under the "China Manufacturing 2025" policy, the government wishes to increase sales of locally manufactured robots by five times, from around 20,000 units in 2015. This policy aims to make the robotics industry one of China's 10 targeted industries. Chinese businesses have reacted positively to this policy. For example, large electrical appliance manufacturer Media Group acquired Kuka, one of the world's largest industrial robotics producers. Ningbo Techmation, China's major producer of machinery in the plastics industry, formed a new company "E-Deocar" to manufacture robots at a lower cost than foreign firms such as Kawasaki Robotics. In addition, while China is not yet equipped with the know-how technology to manufacture robots, it has the potential to reverse engineering and make improvements at significantly lower cost than other countries. It is therefore possible that China will step up to be the world's major robot manufacturer in the near future. Thailand is also building its robotics industry to drive Thai industries towards the Thailand 4.0 era.

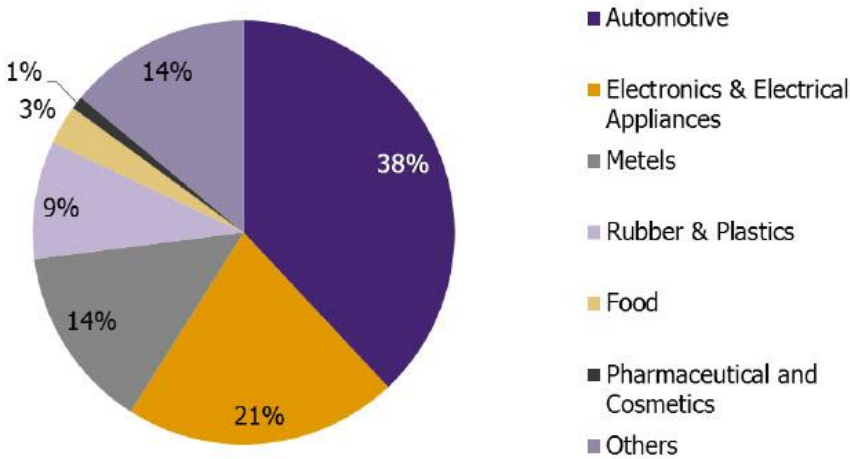
Thailand may face challenges from China, yet EIC sees Thai opportunities and potential in service robots. Even though sales of industrial robots in Thailand are expected to double in the next 2-3 years from the current level of around 4,000 units, the market size is relatively small when compared to the region (Figure 3). Therefore, it is not yet probable for Thailand to transform itself from a user to industrial robot manufacturer. Instead, it is more possible for Thailand to consider becoming a producer of service robots. The service robot trend is significantly increasing as Thailand is becoming an aging society, the manufacturing sector is extending businesses to the service sector, and consumers are changing their behaviors as previously mentioned. In addition, Thailand is equipped with the required human capital and skills as reflected by projects and awards won by Thai students in various global-level robotics competitions. What is needed is support from all relevant entities to improve and extend such projects to serve commercial purposes. This is will be one important factor in driving and capitalizing on opportunities for Thailand's robotics industry.

Implication

- **EIC suggests producers of service robots focus on niche markets and aim to increase exports for economies of scale.** Take the case of Thailand's DINSAW robot. DINSAW is a successful case of robotics development with a clear marketing strategy and the right direction to serve the service sector and a focus on the market for the elderly. There is also a target to penetrate overseas markets in Japan and Sweden to boost confidence in the products and gain trust from customers. If successful, DINSAW robots can also expand to other destinations and further exploit economies of scale.
- **Producers of industrial robots should quickly form an alliance with key players to cover the Asian region and develop a strong supply chain.** The key industrial robot makers are now in the West. Yet, considering market growth potential and transforming into a robot maker in the future, major players in Asia are important to Thailand in the form of an alliance, instead of competing against each other.

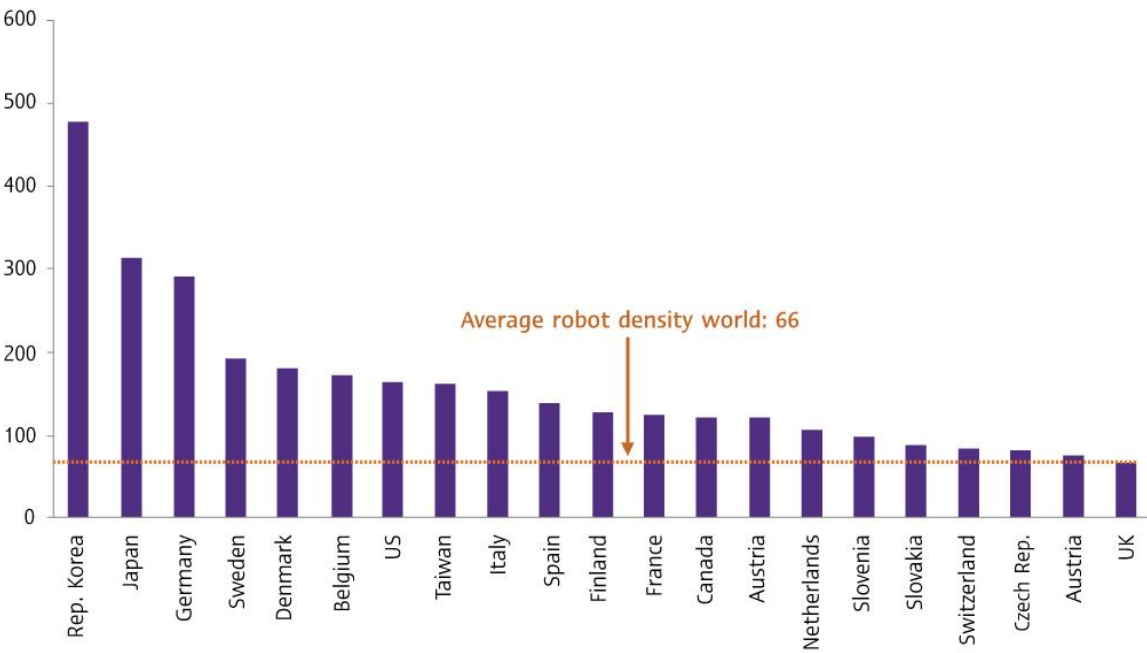
Moreover, the region is equipped with supply chains for other industries that are ready to move towards a robotics industry, such as automotive parts, electrical and electronics parts, and high-tech products.

Figure 1: Ratio of global industrial robots usage by sectors in 2015



Source: EIC analysis based on data from the International Federation of Robotics (IFR).

Figure 2: The countries with higher robot density than the world's average (ratio of robot workers to 10,000 employees)

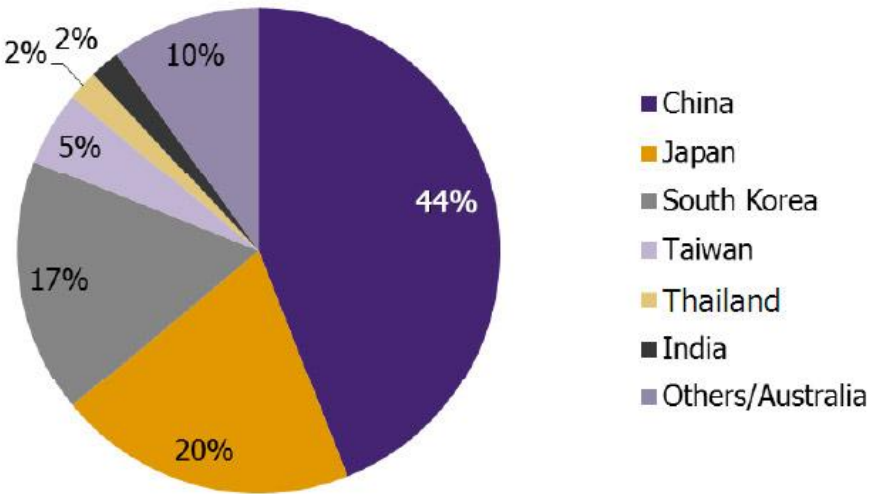


Source: International Federation of Robotics (IFR) in 2014.

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Figure 3: Shares of global industrial robot sales in by markets in Asia in 2015



Source: EIC analysis based on data from the International Federation of Robotics (IFR).

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