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THAILAND INVESTMENT REVIEW

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AUTOMATION & ROBOTICS

A PROMISING FUTURE FOR PRODUCTION

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BOI NET APPLICATION

January - September 2018



Total Investment
1,125 Projects
11,401.70 Million



Total Foreign Investment
722 Projects
4,082.28 Million

FOREIGN INVESTMENT BY TARGET SECTORS



Digital
98 Projects 219.38 M



Medical
13 Projects 102.57 M



Petrochemicals and Chemicals
51 Projects 457.09 M



Automotive
70 Projects 750.20 M



Agriculture and Biotechnology
24 Projects 179.23 M



Electronics
47 Projects 310.43 M



Automation and Robotics
3 Projects 4.05 M



Tourism
5 Projects 220.59 M

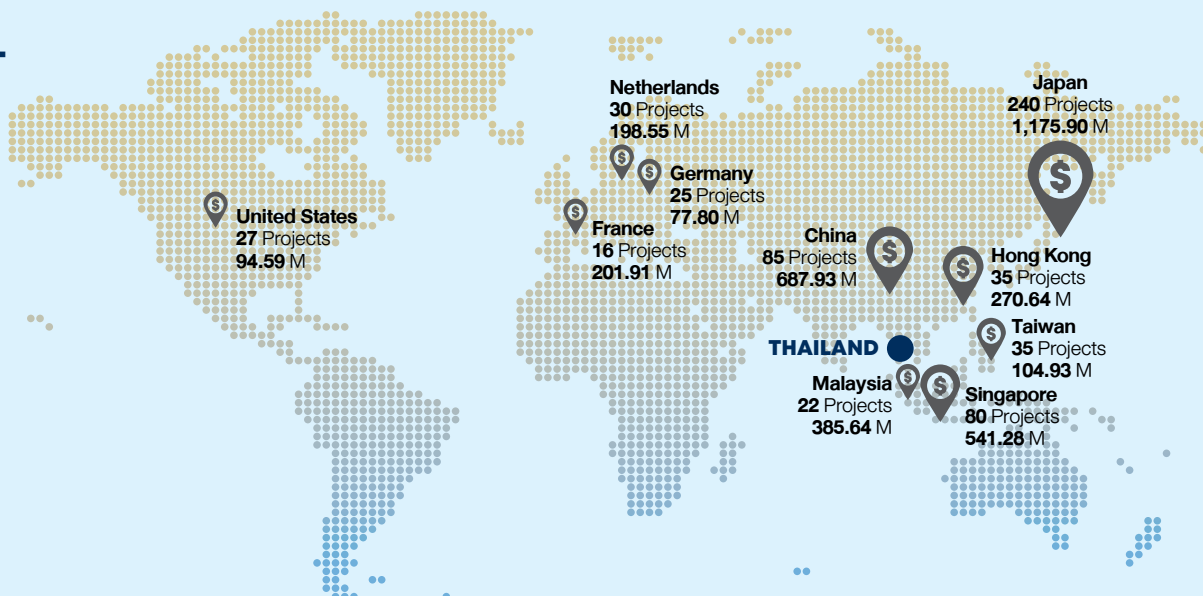


Food Processing
16 Projects 132.23 M



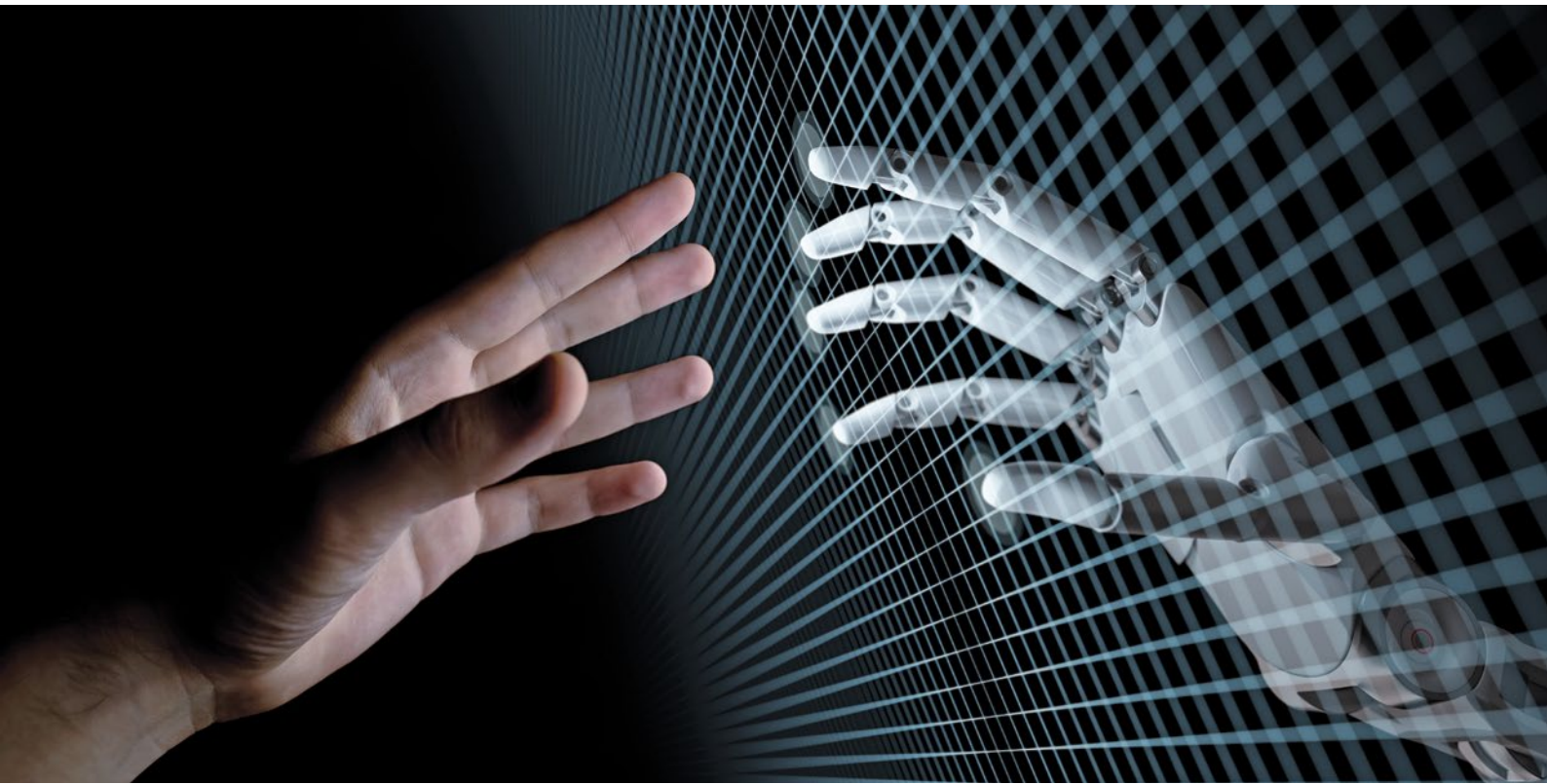
Aerospace
2 Projects 196.25 M

FOREIGN INVESTMENT BY MAJOR ECONOMIES



Unit: US\$ (US\$ = 33.07 THB as of 14 November 2018)

Note: Investment projects with foreign equity participation from more than one country are reported in the figures for both countries. Statistics on net applications are adjusted whenever applications are returned to applicants due to insufficient information. For more details, please see link http://www.boi.go.th/newboi/index.php?page=Report_investment



RISE OF THE ROBOTS: A HISTORY OF AUTOMATION IN THAILAND

History of robots

With their ability to perform repetitive, delicate and even dangerous tasks with high precision, robots have been integral to the automation of manufacturing and production in the world's Fourth Industrial Revolution. For the robotics industry, however, it is more a case of evolution than revolution. The first prototype industrial robot was built as far back as 1937, although it was not until 1954 when American inventor George Devol applied for the world's first robotics patents – and 1961 until those patents were granted. Even then, it took another decade of development before the industry began to embrace the benefits of automation, with industrial

robots as we know them today first beginning to appear in factories in the early 1970s.

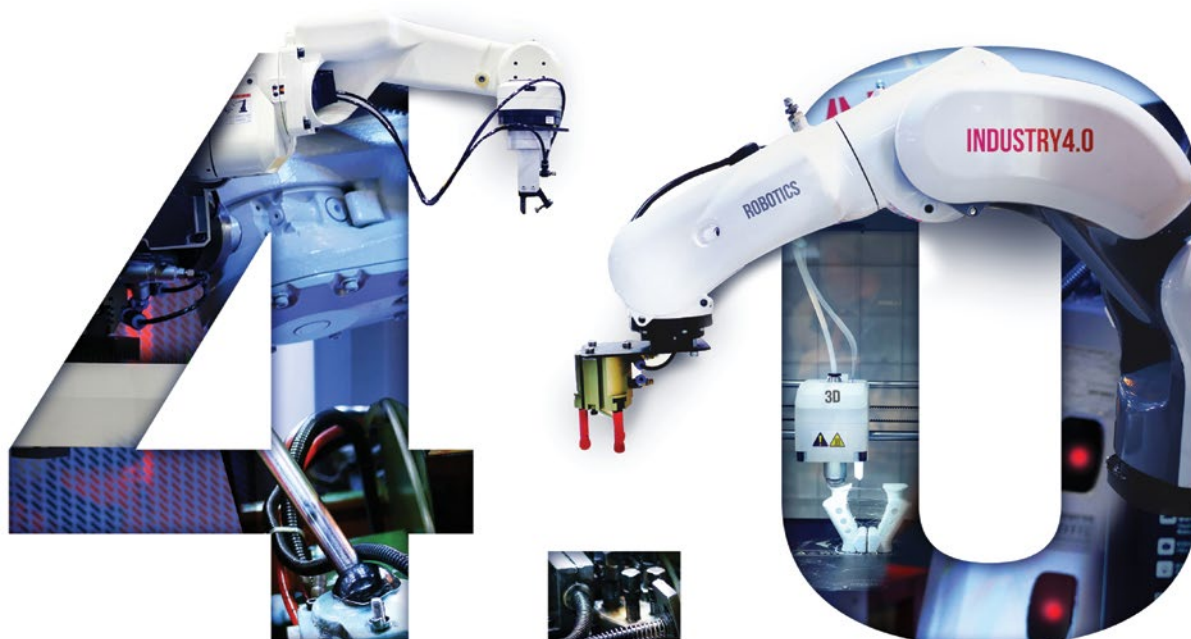
Since then, the industry has evolved rapidly and the roles of robots have expanded beyond performing tasks in factories to providing services to humans. The tasks performed by service robots are wide ranging; from greeting customers to mixing beverages, and from entertaining to taking care of patients, to name just a few. Of all the countries in the world, Japan is a leader in developing and utilizing service robots. Many other countries, including Thailand, are however also making rapid progress in the development and use of robots.

Robots developed and used in Thailand

In this era of Thailand 4.0, with the country making great efforts to establish itself as the No. 1 medical hub of Asia, it is no surprise that robot-assisted surgery is already available in some of Thailand's leading hospitals. Last year, Ramathibodi Hospital in Bangkok successfully completed its first robot-assisted brain surgery ever performed in Asia. Able to provide greater precision in the extremely delicate procedure, the robot was involved in an operation to remove a two-centimeter tumor from a 77-year-old man.

Apart from assisting in medical procedures, robots have also been

COVER STORY



developed for use in various other services within the medical sector. Three Automated Guided Vehicle (AGV) robots were recently put into service at Mongkutwattana Hospital in Bangkok. The three AGV nurse robots are used to transport bookkeeping files between departments. While it has been reported that the three AGV robots have attracted the interest of curious visitors and patients, they also serve the practical use of reducing the manpower needed in the hospital.

Thailand's excellent research and development facilities have also proven productive in the field of medical robots. Developed by Mahidol University, Fhasai is a form of robot-assisted therapy used for children with autism spectrum disorders, and Sensible Tab is another Thai-developed robot used in arm rehabilitation. Also developed by Thai collaborations, Bumblebee is a medical dispenser robot, while B-Hive is a pharmacy automation system that is able to refill medicines at a rate of 20 seconds per prescription.

As Thailand continues to grow into an aging society, technology companies

have responded to the increased demand for service robots. Dinsow is the name of an elderly care robot developed by CT Asia to help the aged with a whole multitude of tasks as well as providing companionship. As with the AGV nurse robots at Mongkutwattana Hospital, unmanned vehicles including drones is another area in which the Thai robotics industry is also achieving recognition. However, as will also be illustrated further in a subsequent article in this edition of Thailand Investment Review, it is undoubtedly in the field of manufacturing where the evolution of automation is gathering pace.

Automation of Thai manufacturing and its future

While the reason for the upward trend in Thailand's robotics industry is largely attributed to the country's strong customer base, the role of robotics and automation technology in adding significant value to the manufacturing sector aligns with the Thai government's vision of transforming the country into an advanced economy under the Thailand 4.0 model. As a

result, the sector has received strong support on various levels.

Manufacturers have invested heavily in the robotic equipment and machinery required to automate their production systems and remain competitive in the global market. In addition to the already high demand for robotic technology in industries such as automotive and electronics, there is a tendency to see increased use of artificial intelligence, big data management and the Internet of Things drive even greater levels of automation in a number of new industries.

Dr. Varin Rodphothong from the Centre of Robotics Excellence (CoRE) at the Thai-German Institute predicted that the Thai industry will increase its overall productivity by 50 percent over the next five years as a result of public and private sector collaboration on both the supply of and demand for robotics and automation systems. Dr. Varin also expects Thailand to become a net exporter of robots and automation systems by 2026 – a prediction that is already on the road to realization. ■



AUTOMATION AND ROBOTICS: A PROMISING FUTURE FOR PRODUCTION

Automation and robotics trends

Over the past five years, the world has experienced a period of sustained growth in the robotics industry, while the adoption of automation systems has also increased significantly, even breaking into the field of domestic use. From 2012 to 2017, global average sales of robots rose sharply with a compound annual growth rate (CAGR) of 19% per year. According to the International Federation of Robotics (IFR) World Robotics 2018 Report, sales continued to surge in 2017, rising

by 30% to 381,335 units to set a new high for the fifth year in a row.

Leading the global growth, Asia holds the highest share of the world's annual shipment of industrial robots. With an average annual growth rate of 25%, the 261,800 units shipped in Asia in 2017 reinforced the position it has held since 2012 as the region with the most robot installations. The rapid growth of automation in Asia corresponds with the global trends that are largely driven by metal and electrical/electronics industries.

For Thailand, the country's impressive growth has earned it a reputation with the IFR as one of the most promising markets within Asia. After a period of decreasing demand in recent years, robot sales in Thailand bounced back in 2017 to increase by 28% and reach a total of 3,400 units. Under Thailand's industry 4.0 era, automation and robotics play an essential role in the development of Thai manufacturing, particularly for the automotive, electrical and electronics industries, as well as food processing which is one of Thailand's top export industries.

Adoption of industrial robots

In addition to being the world's leading exporter of hard-disk drives, Thailand is also a major exporter of motor vehicles. Ranked as the world's 12th largest motor vehicle producer, Thailand produced nearly 2 million units in 2017, according to the International Organization of Motor Vehicle Manufacturers (OICA). The automotive industry in Thailand is also reported to have a high density of robot adoption, with 974 units per 10,000 persons employed, placing Thailand closely behind industrial giants like the USA, Germany, and Japan at 1,200 units, 1,162 units, and 1,158 units per 10,000 persons employed respectively.

Apart from the huge adoption in its automotive industry, Thailand's food sector is also looking at enhancing its efficiency by incorporating more robots into the production line, especially for the food processing sector. As one of the most advanced in ASEAN, Thailand's food processing industry was predicted to grow by 8.7 percent in 2018 to reach a total value of 36 billion USD. To accommodate this growth, large manufacturers are increasingly relying on robots, especially the so-called "Cobots" – a robot designed to interact physically or assist humans in the workspace.

Compared to the growing demand and adoption in the automotive, electronic, and food processing industries, the application of robotic equipment in other

industries remains relatively low. According to the Department of Industrial Promotion, only 15% of the manufacturing sector in Thailand has adopted robotics and automation into the production process. This indicates untapped potential for robotics and automation to further maximize the capacity and efficiency of the country's manufacturing and service sectors.

Strong supporting factors

Having embarked on a journey towards an advanced economy under its Thailand 4.0 vision, Thailand's public and private sectors are placing maximum effort into creating growth and ensuring sustainability through the government's 10 targeted industries. Automation and robotics figure prominently among the new engines of growth prioritized by the Thai government. For its part, the BOI is also offering a wide range of investment incentives for any projects that meet national development objectives on either the supply or the demand side.

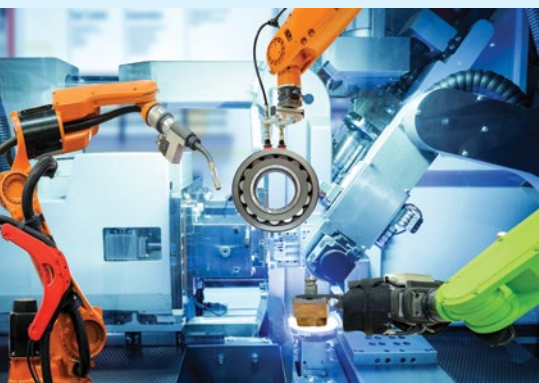
To encourage the development of automation and robotics providers, a number of generous incentives are available. For example, activities that include the manufacture of automation machinery/automation equipment with engineering design are eligible for an 8-year corporate income tax (CIT) exemption while the assembly of robots or automation equipment or parts is eligible for a 5-year CIT exemption. Non-tax incentives include the permission to own land, to acquire relevant visas/work permits for foreign staff.

The BOI also recognizes the importance of investments in relevant activities in targeted locations. For this reason, it has provided additional incentives for investment in the Eastern Economic Corridor (EEC) area. For example, in the Eastern Economic Corridor of Innovation (EECI), an additional 4-year CIT exemption is available for the manufacture of automation machinery/automation equipment with engineering

design and an additional 2-year CIT exemption with a 5-year 50% CIT reduction is available for the assembly of robots or automation equipment or parts. To qualify for these EEC incentives, it is also necessary for conditions on cooperation with academic institutions to be met.

To stimulate the use of automation and robotics systems, the BOI has also offered incentives under the Measures for Improvement of Production Efficiency for enterprises which upgrade their technology and machinery for manufacturing. Available incentives include, for example, a 3-year CIT exemption on the revenue of an existing project, with a CIT cap not exceeding 50% of the investment capital (excluding cost of land and working capital); in the case of investments in automation systems, the CIT cap will be raised to 100% of the investment if the value of linkages to the Thai automation industry reaches at least 30% of the total value of the automation system.

Aside from the growing demand in various sub-industries and the strong government support, Thailand's automation and robotics industry enjoys an increasingly robust ecosystem. Private sector entities in the automation and robotics industry have joined together to create the Thailand Automation and Robotics Association (TARA) and the Thai Robotics Society to assist their members in strengthening cooperation and partnerships in the industry. Thai educational institutions have also supported the industry through research and development as well with human resource training. The rising number of academic institutions offering undergraduate and graduate programs in robotics engineering, as well the number of students enrolled in such programs, is just one clear example that Thailand is ready to provide the next generation of highly-qualified personnel for the automated future of production in the country. ■



TOWARDS 2019: THAILAND INVESTMENT YEAR

Concluding 2018 with a sizable number of investment applications, the Thailand Board of Investment (BOI) has launched its new incentives to take investment in Thailand to the next level and make 2019 “Thailand Investment Year.”

Together with positive feedback from domestic and foreign investors, the BOI received a total of 1,125 project applications with a total investment value of 377,054 million baht in the first three quarters of 2018. Statistics also showed that investment in targeted industries increased by 69% compared to the same period of the previous year, while the top industries with the largest investment application values were green petrochemicals and chemicals, automotive and parts, tourism, agriculture and biotechnology, and digital. For the coming year, the Board of Investment, chaired by the Prime Minister, has approved its latest promotion measures to stimulate a range of activities including large investment, grassroots economy and strengthening the capital market, among others.

To begin with the special measures for the Thailand Investment Year, large projects with a minimum investment value of 1 billion baht that have a significant impact on the economy and utilize advanced technology are eligible for additional incentives, on top of the normal scheme. These extra incentives include a 50% reduction of corporate income tax (CIT) for three years. One important condition is that the projects must be located outside Bangkok in order to encourage substantial investment in other parts of the country. The investment applications also have to be submitted by 30 December 2019.

The BOI also recognizes the importance of the grassroots economy. Hence, with the objective of supporting

local organizations, the Board agreed on an improvement to the Local Investment Promotion Measure with the aim of further stimulating investment at the grassroots level. Enterprises that support local organizations will be eligible for 3 years of tax exemption on their existing business activity, with the total tax holiday value limited to not more than 120% of the investment capital or the actual expenses related to the support. The applications for the scheme must be submitted by 30 December 2020.

In addition, the BOI also approved an investment incentive scheme for Smart City development, with three business activities eligible under this measure. Firstly, Smart City Development: the BOI offers CIT exemption (with an investment cap) for activities that can provide Smart Environment services, plus at least one other ‘Smart’ service from Smart Mobility, Smart People, Smart Living, Smart Economy, Smart Governance, and Smart Energy. Secondly, Smart City System Development: any activity that is part of a Smart City Development project approved by organizations directly responsible for Smart City development is eligible for this incentive. Lastly, Smart Industrial Estate or Zone: projects that can provide all the required systems will receive 8-year CIT exemption with an investment cap and the projects must also have a majority of Thai shareholders.

To support the development of innovation and the digital ecosystem, the Board has also approved a new



investment promotion category, the so-called Maker Space or Fabrication Laboratory, to provide machinery and tools for making prototype products. Eligible projects will receive a 5-year tax holiday and import duty exemption on machinery. A new investment promotion category for Co-Working Space has also been approved. It is believed that this will connect local developers with the global community and encourage startups and venture capitalists from all over the world to invest in Thailand. Additionally, there has been a modification on conditions for the Innovation Incubation Center, a currently promoted activity, to bring such conditions more in line with the direction of the sector's development.

Apart from the sector-based incentives, BOI-promoted companies are also encouraged to be listed on the Stock Exchange of Thailand (SET). Companies listed on the SET will receive corporate tax exemption for another 100% of the investment capital (excluding cost of land and working capital).

It is believed that these new incentives will attract more foreign investment to Thailand and will improve the country's business and investment environment in the coming year to make 2019 “Thailand Investment Year.” ■

LERTVILAI & SONS CO., LTD.: A FORERUNNER IN WELDING AND ROBOTIC SYSTEMS INTEGRATION

The Lertvilai story

Operating as a cluster of companies with interconnected areas of focus, the Lertvilai Group specializes in welding consumables and equipment for both the Thai and international markets. The group's service offerings include sales, manufacturing, imports, after-sales support, market analysis – and most recently – a drive towards robotic system integration. As a company that was founded with a genuine desire to engage and serve customers, Lertvilai provides a personalized approach to its delivery of welding consumables, equipment, tools and robots to all its customers.

Since its establishment in Bangkok's Yaowarat District in 1952, Lertvilai & Sons has expanded to a total of eight independent yet interrelated business entities. The first notable expansion occurred in 1973 when the company embarked on a partnership with Nippon Steel and Sumikin Welding Co. Ltd., a critical entry point for Lertvilai into the manufacturing sector. A number of other strategic business additions subsequently ensued including with Yawata Electrode (Thailand) Co. Ltd. in 1973, Thai Hansa Welding Electrodes Co. Ltd. in 1984, and Tricab (Thailand) Co., Ltd in 1995.

Lertvilai's financial performance has been substantially driven by a recent growth within the robotics and automation sector, a business arm that accounted for almost 30% of Lertvilai's total sales in 2018 alone. With continued growth in the robotics sector projected

“From our humble beginning as a bicycle repair shop, Lertvilai & Sons has gone on to become a leading producer of welding consumables and robotic & automation systems for customers at home and abroad. Despite our significant growth over the years, and our recent shift into the robotics & automation sector, we remain very much committed to our core philosophy of putting our customers and their needs first.”

Dr. Prapin Abhinorasaeth,
Executive Director,
Lertvilai & Sons Co., Ltd.



for the foreseeable future, Lertvilai & Sons anticipates future year-on-year growth of approximately 20%.

Why is Thailand's robotics and automation sector growing so quickly?

Over the past few years, the government has made concerted efforts to support the development of Thailand's robotics and automation sector. This has primarily been driven by a push towards making Thailand an “innovation economy” via the implementation of the Thailand 4.0 policy. Most notably, in 2017 the government announced their intention to mobilize substantial financial resources towards the implementation of a comprehensive robotics development plan. It is envisioned that such resources would provide a “kick-start” within Thailand for the development of the robotics and automation sector. As Lertvilai & Sons has continued to increase their presence within the Thai and international markets, the BOI has been able to provide additional support with a range of tax and non-tax incentives. For example, Yawata was recently granted a corporate income tax exemption for three years. This incentive is under the Measures for Improvement of Production Efficiency obtained as part of the commitment to upgrade technology and machinery through the use of robotic and automation systems. Other Lertvilai business arms have received support in the form of corporate income tax exemptions, import duty exemptions and visa support.

As a result of the welcoming policy environment for businesses specializing in robotics and automation, Thailand has become known as a cutting-edge location for an increasingly vibrant robotics industry. Dr. Prapin Abhinorasaeth, Executive Director of Lertvilai & Sons and President of the Thai Automation and Robotics Association (TARA), highlights how the BOI's support for the robotic industry has been invaluable in this regard. When specifically thinking about Lertvilai, he notes that the support from the BOI has allowed the company to reduce its costs, minimize its tax obligations, and establish the robust foundations from which Lertvilai is able to continue its growth.



With the BOI's A1 promotional privileges recently granted to Lertvilai & Sons Co., Ltd. under the Automation System Integration Activity, a new 1,300 SQM Robot and Automation System Integration Centre is being constructed, with completion scheduled for August 2019. Dr Prapin considers robotics and automation to be "undoubtedly the biggest area of growth for Lertvilai in the next 5-10 years." He also notes that "to support the industry, Lertvilai, as a robotics & automation system integrator, will continue to invest in the

people, facilities and technology that are required to grow our robotics and automation division well into the future."

Since commencing operations nearly 65 years ago, Lertvilai has gone on to play a leading role in the development of Thailand's robotics and automation industry. For example, through partnerships with a range of globally reputed brands such as Nachi as well as being an approved robot supplier for Isuzu, Toyota, and Auto Alliance, among others, for the past two decades, Lertvilai has been able to contribute to raising awareness and increasing knowledge of Thailand's robotics and automation sector. In addition, Lertvilai has also been actively involved in promoting BOI opportunities, contributing to national policy debates, and facilitating the development of future industry talent. As a company that has been a consistently strong proponent of increased robotic automation, Lertvilai is well placed to continue leading the development of the industry in Thailand for many years to come. ■

What does the future hold for Lertvilai?

Lertvilai is committed to the continued growth of its robotics and automation operations. Such expansion has been recently evidenced by the new Lertvilai Robot & Automation Center and Robot Welding & Welding Technology Center.

NEWS BITES

Thai-made robot designed for elderly and Alzheimer's Care: On 30 November 2018, CT Asia Robotics launched "Dinsow Mini 2" - the latest version of a Thai-made-and-designed robot equipped with artificial intelligence features. Since its development by a Thai entrepreneur, the Dinsow Mini robot has been changing the face of elderly care in Thailand by providing companionship for the elderly, especially those with Alzheimer's. The original version of the robot has been used in nearly 20 hospitals in Thailand including Siriraj Hospital and Chulalongkorn Hospital.

The Dinsow Mini 2 version of the robot is designed for home use. Programmed with voice recognition, voice command, facial recognition and also artificial intelligence (AI) features, the robot has the ability to learn more about the elderly person's voice, face, behavior, and lifestyle. The robot also contains brain exercises for the elderly and is programmed to encourage those in its care to do them in a bid to keep their minds active and slow down the onset of Alzheimer's.

KOSEN-KMITL prepares to launch Mechatronic Engineering program in 2019:

On 14 December 2018, King Mongkut's Institute of Technology Ladkrabang (KMITL) together with Japan's Institute of National Colleges of Technology, known as KOSEN, signed a memorandum of cooperation for the establishment of the first KOSEN Vocational Demonstration School in Thailand (KOSEN-KMITL). The institute is a Thai-Japanese cooperation aimed at producing world-class professional engineers to keep up with the increased sophistication of technology and innovation. The curriculum used in Thailand's KOSEN Vocational Demonstration School will follow the same academic standards used in Japan. According to Dr.Komsan Maleesee, Dean of Faculty of Engineering KMITL, Mechatronics Engineering will be launched in the academic year 2019 as the first program of KOSEN-KMITL. It is a five-year program which has been designed to produce professional specialists in automation and robotic engineering. Students will be encouraged to experiment with automation technology and learn through hands-on practice.

BOI'S MISSIONS AND EVENTS



On 28 November 2018, the Thailand Board of Investment organized a Thai-German Business Forum under the title “Asia-Europe Partnership for the Future”. Held at the Hilton Hotel, Berlin in the Federal Republic of Germany, the event was joined by 150 delegates. H.E. General Prayut Chan-o-cha, the Prime Minister of Thailand, presided over the forum and delivered the keynote speech. The forum also featured a panel discussion on the topic of “Driving Transformation through Thailand 4.0 and Eastern Economic Corridor - Business Opportunities for German Business”. Participating in the panel discussion were H.E. Mr. Kobsak Pootrakool, Minister attached to the Prime Minister’s Office; representatives from the BOI and Eastern Economic Corridor Office of Thailand; and business delegates from many of Germany’s well-established companies in Thailand.



Ms. Duangjai Asawachintachit, Secretary General of the Thailand Board of Investment, joined the Prime Minister’s Office Address Luncheon 2018, organized by the Joint Foreign Chambers of Commerce in Thailand (JFCCT), on 6 December 2018 at Bangkok Marriott Marquis Queen’s Park. In the event, H.E. Mr. Kobsak Pootrakool, Minister attached to the Prime Minister’s Office, delivered the keynote speech. The speech was followed by a panel discussion on “Supporting Existing Foreign Business Investment in Thailand”. Representatives from both the public and private sectors participated in the event.



On 8 December 2018, Mr. Chokedee Kaewsang, Deputy Secretary General of the Thailand Board of Investment, and Mr. Choowong Tangkoonsonbati, Executive Director of the Thai Overseas Investment Promotion Division, joined the closing ceremony of the “Thailand

Overseas Investment Support Center: TOISC 14-15” at the Golden Tulip Hotel, Bangkok. Certificates of completion were presented to 67 participants in the ceremony. The course lasted for eight months with the aim of providing participants with the knowledge required for investing in foreign countries.



During 3-7 December 2018, Mr. Narit Therdsteerasukdi, Deputy Secretary General of the Thailand Board of Investment, and Ms. Vannipa Pipupchaiyasit, Director of the BOI Seoul Office, led a delegation to visit Busan, Changwon and Ulsan, three major industrial cities in the Republic of Korea. The delegation met top executives from companies in those three cities and the Federation of Korean Industries, as well as major investors in the electric vehicle, digital, medical device and machinery industries. The delegation also visited the Busan-Jinhae Free Economic Zone, and had an opportunity to learn more about Korea’s Smart City systems.



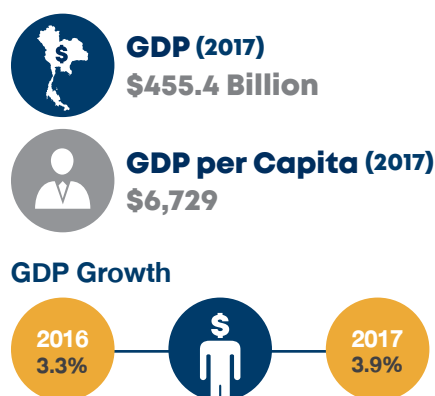
During 11-14 December 2018, representatives from the Thailand Board of Investment along with those from other organizations including the Electric Vehicle Association of Thailand took part in investment promotion activities, focusing on an overview of the next-generation automotive industry in Thailand and Thailand’s investment promotion policy for Japanese investors, in Osaka and Tokyo, Japan. In Osaka, on 12 December 2018, led by Ms. Patcharada Nawakawongkam, Director of the BOI Osaka Office, the Office organized a seminar which welcomed more than 150 participants. The seminar in Tokyo on 14 December 2018, co-hosted by Hamamatsu City and the BOI Tokyo Office, led by Mr. Pariyes Piriymaskul, welcomed more than 40 attendees representing automotive and auto parts manufacturers.



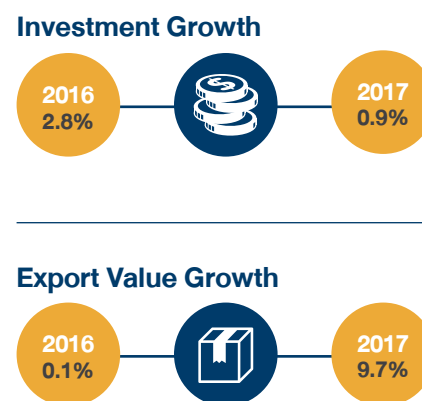
On 27 November 2018, Ms. Kanokporn Chotipal, Executive Director of Regional Investment and Economic Center 1, welcomed a delegation from the Malaysian Consortium of Mid-Tier Companies (MCMTC) to explore investment opportunities in Northern Thailand at the Northern Science Park, Chiang Mai Province. On this occasion, the delegation entered into preliminary business negotiations with Thai entrepreneurs in Chiang Mai in food and beverage, logistics, automotive and chemical industries.

THAILAND ECONOMY-AT-A-GLANCE

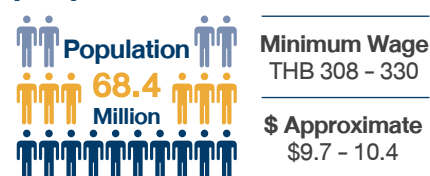
Key Economic Figures



Source: NESDB



Market Profile (2017)



International Competitiveness



Time to set up business : 4.5 days

Source: World Bank, WEF and IMD

Export Figures

(January - November 2018)

Export value (USD million)

Jan - Nov 2017 : 216,913.20

Jan - Nov 2018 : 232,725.00

Year-on-year Growth : 7.3%

Top 10 Export Markets

Rank	Value (USD Million)	YoY Growth	Share
China	27,514	2.4%	11.8%
US	25,792	5.8%	11.1%
Japan	23,082	14.0%	9.9%
Vietnam	11,794	13.1%	5.1%
Hong Kong	11,632	2.5%	5.0%
Malaysia	10,739	13.4%	4.6%
Australia	10,075	3.4%	4.3%
Indonesia	9,328	13.6%	4.0%
Singapore	8,676	13.1%	3.7%
Philippines	7,341	13.9%	3.2%

Top 10 Exports

Goods / Products	Value (USD million)	YoY Growth	Share	Goods / Products	Value (USD million)	YoY Growth	Share
1: Motor cars and parts	26,723	7.5%	11.5%	6: Refined fuels	8,578	32.6%	3.7%
2: Computers and parts	18,354	9.2%	7.9%	7: Chemical products	8,415	23.2%	3.6%
3: Precious stones and jewellery	11,149	-7.3%	4.8%	8: Electronic integrated circuits	7,657	1.3%	3.3%
4: Rubber products	10,063	7.8%	4.3%	9: Machinery and parts	7,405	6.5%	3.2%
5: Plastic beads	9,544	20.4%	4.1%	10: Steel and steel products	5,754	12.9%	2.5%

Source: Ministry of Commerce

Exchange Rates

(Data as of 14 November 2018)



Source: Bank of Thailand

Note: JPY currency is for 100 Yen

Tax Rate

Corporate Income Tax: 0 - 20%

Personal Income Tax: 5 - 35%

VAT: 7%

Withholding Tax: 1 - 10%

Source: the Revenue Department

ABOUT BOI

The Office of the Board of Investment (BOI) is the principle government agency that operates under the Prime Minister's Office for the purpose of encouraging investment in Thailand. We at the BOI serve as the professional contact points for investors, providing them with useful investment information and services. We offer business support and investment incentive to foreign investors in Thailand, including tax and non-tax incentives. A few non-tax incentives include granting land ownership to foreigners and facilitating visas and work permits. Besides serving the needs of overseas investors, we also offer consultation services to Thai investors who are interested in investment opportunities abroad.



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