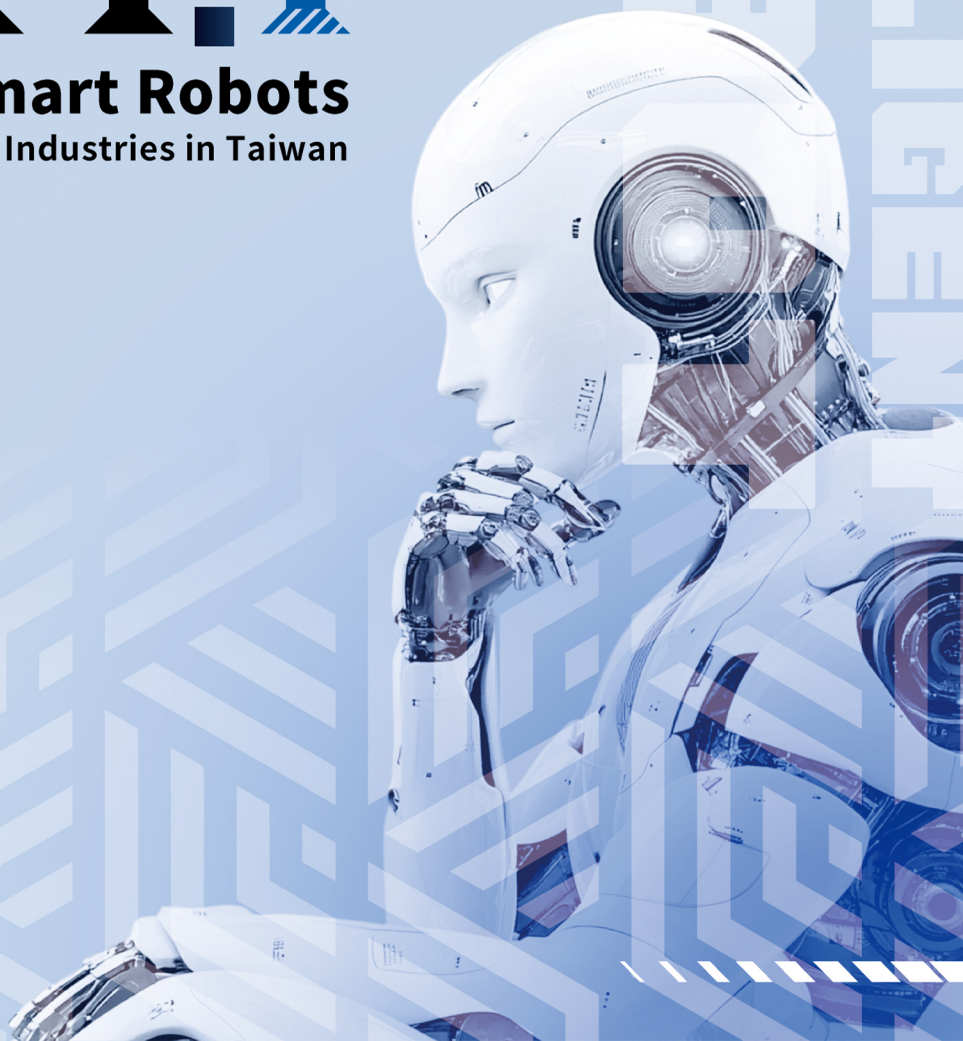




Smart Robots

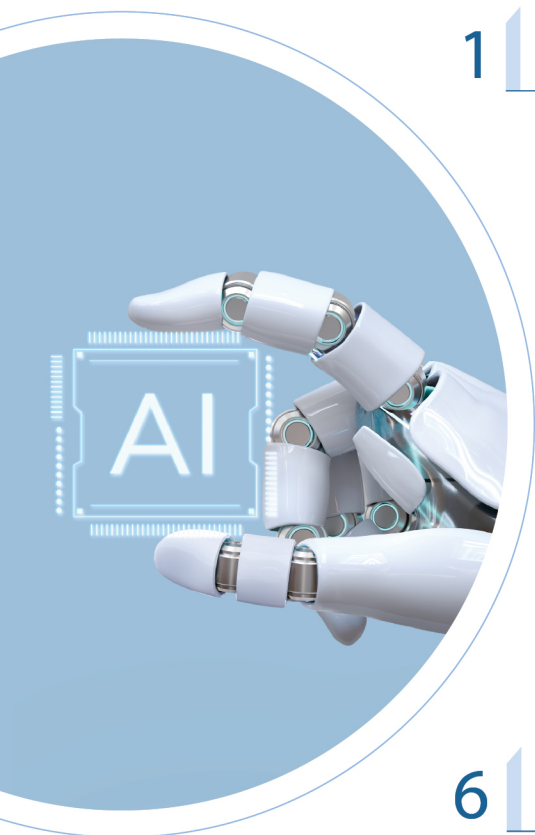
Key Industries in Taiwan





Smart Robots

Key Industries in Taiwan



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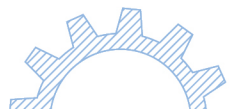
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Policy Guidelines



Smart robots are the key vehicle for applying AI in the physical world, and represent the next major direction for advancing Taiwan's technology industry toward higher value-added and greater intelligence. Leveraging its strong capabilities in semiconductors, ICT, and precision manufacturing, Taiwan possesses a complete technological foundation and industry chain that supports vertical integration and innovative applications in the smart robot sector.

Guided by the core vision of "AI as an industry, AI for industries" (AI 產業化、產業 AI 化), the government is actively promoting the development of the smart robot industry. Efforts include integrating R&D, manufacturing, applications, and regulatory resources, fostering talent, and advancing cross-sector collaboration. These initiatives aim to strengthen indigenous technologies, build an industry ecosystem, and expand application scenarios, thereby accelerating the adoption of smart robot technologies across diverse sectors. Step by step, Taiwan is moving toward the long-term goal of becoming an AI Island.

In 2025, the government launched the Smart Robotics Industry Promotion Plan, a cross-ministerial initiative that leverages local strengths to foster collaboration among industry, government, academia, and research institutions. The plan aims to accelerate the deployment of indigenous smart robot applications, strengthen Taiwan's global competitiveness in the smart robotics industry, ensure national information and communication security, and address diverse societal needs of the future.

The plan sets out three major objectives: 1. Foster robotics startups with system development capabilities through subsidies for robotics centers and advanced R&D; 2. Expand domestic output of smart robotics, strengthen the supply chain and industrial ecosystem, and increase the output value of professional service robots from NT\$4 billion to NT\$50 billion within five years; 3. Promote wider adoption of smart robots by introducing service robots into labor-intensive application scenarios, thereby helping to address domestic labor shortages. The plan also outlines four key strategies:

(A) Advance Key Technologies

Establish a smart robotics research center and a smart robotics innovation and application R&D center, both located in Tainan, in collaboration with industry, academia and research institutions, to translate research and development into real-world innovations and value-added applications.

(B) Grow the Industry Ecosystem

Foster robotics industry clusters by linking the smart robotics research center, the smart robotics innovation and application R&D center, and the Taiwan Tech Arena (TTA) South startup hub, creating a thriving robotics industry ecosystem across Taiwan's greater southern region.

(C) Enhance Industry Cybersecurity, Standards and Regulation

Promote measures such as standards testing for service-oriented smart robotics products, and guidance for strengthening cybersecurity.

(D) Cultivate and Deploy Talent

Promote vocational training and upskilling programs. Strengthen both local and international talent attraction. Foster master's and doctoral-level professionals. Establish demonstration sites and market outreach initiatives.

Industry Overview



(A) Industry Output and Overview

Since the introduction of the first industrial robot in the 1950s, robotics technology has advanced rapidly. In recent years, breakthroughs in digital technologies such as AI, sensors, and big data have endowed robots with greater intelligence, flexibility, and multifunctionality, leading to widespread applications in manufacturing, healthcare, logistics, agriculture, and defense. In 2024, the market value of industrial robots reached US\$17 billion and that of service robots reached US\$47 billion. By 2030, these values are projected to grow to US\$35 billion and US\$116 billion, respectively. The fact that service robots have already surpassed the US\$100 billion mark highlights the surging global demand for service robotics in the years ahead.

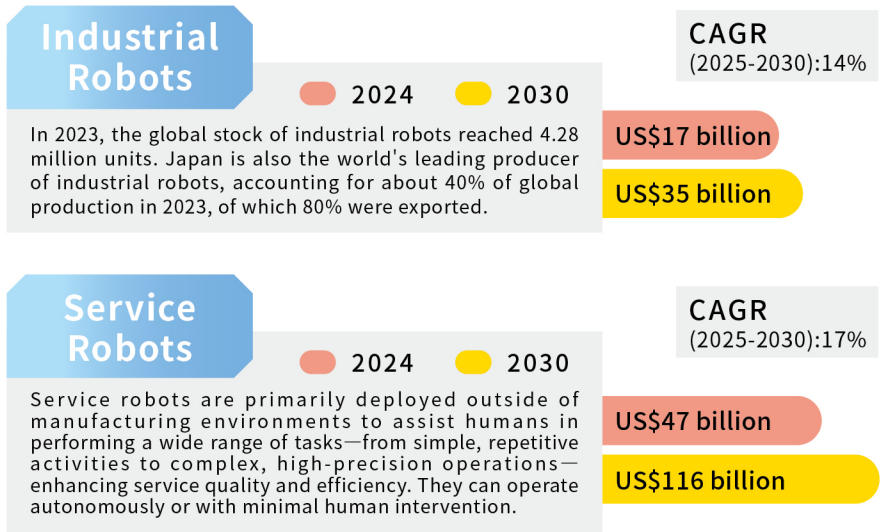


Figure 1. Global Robotics Market Trends by Type
Source: MarketsandMarkets

Over the past decade, Taiwan's precision machinery and automation industries have built a strong presence in global markets and have gradually demonstrated capabilities in key robotics technologies. According to IEK View estimates, the output value of Taiwan's machinery industry reached NT\$1.08 trillion in 2024 and is expected to grow to NT\$1.1 trillion in 2025, representing an annual growth rate of 3.7%. This includes machine tools, automation equipment, and robots. With global manufacturers accelerating the adoption of Industry 4.0, demand for industrial robots is projected to continue rising. Meanwhile, service robots are expanding rapidly in applications such as healthcare, cleaning and disinfection, and food service in response to aging populations and labor shortages. The government is actively promoting a five-year plan to increase the domestic output value of service robots to NT\$50 billion.



Although Taiwan's robotics industry covers diverse product categories, it remains dominated by industrial robots, with service robots in the early stages of growth. In 2023, Taiwan's share of the global industrial robot arm market was only about 1.39%. While the country does not yet have large-scale manufacturers of humanoid robots, several companies have expressed interest. For example, Foxconn aims to leverage its electric vehicle production lines, batteries, motors, and automation resources to develop complete humanoid robots, while Techman Robot is exploring extensions of its existing industrial robot arm technologies. Taiwan continues to hold opportunities to maintain technological autonomy by capitalizing on its strengths in machinery components and semiconductor chips.



Industrial Robots

Industrial robots are primarily used in manufacturing, featuring automated operation, high precision, and high-speed performance. Common applications include assembly, material handling, welding, painting, inspection, and packaging, making them a core component of smart manufacturing. As demand for high-efficiency and flexible production continues to grow in the semiconductor, automotive, and metal processing industries, industrial robots are rapidly evolving from fixed operations to collaborative, autonomous, and multi-axis high-flexibility applications.

Taiwan has a complete supply chain in precision machinery and control components, giving it a natural advantage in the development of industrial robots. Representative companies include HIWIN Technologies, which has launched multi-joint industrial arms and SCARA robots for metal processing and automated warehousing systems. Another example is Delta Electronics (DELTA), which provides one-stop automation solutions that integrate controllers, drivers, and industrial robots, with wide deployment across electronics, food, and medical equipment production lines.

Service Robots

Service robots are designed for human living and working environments, with an emphasis on human-machine interaction, safety, and environmental adaptability. Their applications span healthcare, logistics and delivery, education and entertainment, hospitality, cleaning, and disinfection. Driven by an aging population, labor shortages, and post-pandemic demand for contactless services, deployment of service robots in hospitals, airports, hotels, and shopping malls has accelerated. These robots are increasingly integrated with AI voice systems, computer vision, and 5G connectivity, moving toward multifunctional, multi-scenario, and autonomous interaction. Taiwan has already achieved several commercialized results in this field. For example, The Syscom Group has integrated speech AI, computer vision, natural language processing (NLP), and indoor navigation to create Ayuda, the world's only humanoid service robot developed in Taiwan. Ayuda is suitable for deployment in law enforcement, retail, banking, hospitals, large exhibitions, events, and government agencies. Another example is Advantech, which has introduced a mobile service robot platform that combines edge AI with robotic bases. This platform has already been deployed in hospitals for automated patient guidance and medicine delivery systems, improving healthcare efficiency and infection control.

(B) Industry Value Chain

Taiwan’s robotics industry encompasses a complete value chain, spanning upstream key components, midstream robot manufacturing, and downstream systems integration. On the upstream side, Taiwanese firms hold strong international competitiveness in precision motion components such as ball screws and linear guideways. Companies like HIWIN Technologies not only manufacture mechanical components but also develop their own branded industrial robots. In addition, industrial PC maker Axiomtek has launched compact, energy-efficient controllers designed for autonomous mobile robots, simplifying robotic application development and integration, particularly in warehousing and factory automation. In the midstream, domestic firms have introduced emerging products such as collaborative robots (cobots). A notable example is Techman Robot, a subsidiary of Quanta Computer, which in just a few years has become the world’s second-largest supplier of cobots. On the downstream side, Taiwan’s strength in information and communications technology (ICT) provides a solid foundation for systems integration and application services. Companies such as Advantech and Delta Electronics offer comprehensive smart factory solutions that integrate robots, sensors, and Industrial Internet of Things (IIoT) platforms, meeting the growing demand for customized automation.

	Classification		Key Companies	
Upstream	Reducers		Main Drive Corp. (joint venture with MiRLE and Hota Industrial), TPI Bearings, KH Gears	
			APEX Dynamics, TURVO, LI MING, ACE PILLAR	
	Motors		DELTA, TECO, Auretek, SEEC	
			Hiwin Mikrosystem, Chieftek Precision, TURVO	
	Ball Screws/ Roller Screws		TBI Motion, Hiwin, TOYO ROBOT, PMI, Taiwan Ball Screw International	
	Controllers		NEXCOM, NexCOBOT, DELTA, Syntec, ICP DAS	
	Semiconductor		IC Design	Sensortek, Sunplus Innovation, ELAN, Megawin, Nuvoton, Generalplus, PixArt Imaging, Egis
				ZiiITek, Airoha, IC Plus, Amicom, Syncomm (Alcor), Silicon Touch (SiTi)
			IC Manufacturing	Macronix, Phison, Winbond, Etron
	PCBs		TSMC, ASE, Winstek, Sigurd, THEIL, Xintec, Chroma ATE	
Unimicron, KINSUS, Nanya PCB				
Sensors		Machine Vision	Unimicron, Compeq, HannStar Board, Unitech, Allied Circuit, Nanya PCB	
			Canon, Altek, ABICO, RITEK	
			SOLOMON, KYE Systems, Unitech, Adlink, Chicony, Brinno, VisERA, RoyalTek, Creative Sensor Inc	
Midstream	Robot Bodies		YLM, Techman, Hiwin, Simplo, SAA Symtek	
Downstream	Robotics System Integration		Taibeco, IEI, Shuttle Inc., GPM, ACE PILLAR, MiRLE, Flytech, Coretronic, Allring, Pegatron, TECO, Qisda, Axiomtek, DFI, Neousys	

Figure 2. Upstream and Downstream Supply Chains of Taiwan’s Robotics Industry

Source: ITRI ISTI (Industry, Science and Technology International Strategy Center) IEKNet

(C) Industry Cluster

Taiwan's robotics and smart automation industry has formed distinct clusters in the north, central, and southern regions, each with its own strengths. In northern Taiwan, the industry benefits from a well-established ICT base and precision component manufacturing, with strong capabilities in AI-based vision sensing and industrial automation system development. Representative companies include SOLOMON, CIRC (Coretronic Intelligent Robotics), and Aurotek.

In central Taiwan, the Central Taiwan Science Park—particularly the Erlin Park—and the Taichung Software Park serve as the core hubs, combining precision machinery with intelligent software development. This cluster encompasses precision machine tools, robot bodies, critical components, and system integration. The Erlin Park is positioned as a major center for precision machinery, supporting robot parts and machine tool production. Meanwhile, the Taichung Software Park hosts over 140 companies in AI, IoT, and robotics, making it a key base for software–hardware integration. Leading companies such as HIWIN and PMI (Precision Motion Industries) have established R&D and manufacturing centers in Taichung. The complete supply chain and close industry–academia–research collaboration provide fertile ground for robotics R&D and production.

In southern Taiwan, the robotics sector has risen rapidly in recent years. The AI Special Zone in Shalun in Tainan focuses on integrating AI with robotics. In 2025, the government launched the AI Smart Robotics Plan, designating Tainan's Liouying Technology Industrial Park as the hub for a new robotics cluster. In addition, the NSTC and ITRI are collaborating to set up an intelligent robotics innovation and application R&D center in Liujia and a National Center for AI Robotics in Shalun, creating venues for robotics development, manufacturing, and testing while building an integrated ecosystem. Kaohsiung, for its part, has leveraged its technology industrial parks to advance automated production equipment, gradually forming its own regional specialization.

Together, the three clusters—north, central, and south—form a complementary ecosystem: northern Taiwan anchors upstream components and ICT technologies, central Taiwan integrates with software development, and southern Taiwan advances mass production and application testbeds. This structure enables Taiwan's robotics industry to achieve a complete value chain spanning design, R&D, and field applications. Coupled with supportive industrial policies and startup investment, this ecosystem will continue driving smart manufacturing and AI-driven transformation.

Opportunities for Foreign Investment



Industry Clusters & Supply Chain Integration: Localizing Manufacturing

Taiwan boasts one of the world's most complete machinery and electronics supply chains, making it a key hub for smart robotics development. In central Taiwan, a dense cluster of precision machining and component suppliers covers all major robotics technologies, including drive components, servo motors, sensing modules, and control systems. In southern Taiwan, the Southern Taiwan Science Park serves as the nucleus, complemented by the AI_ROBOT@STSP and the Kaohsiung KO-IN Technology Innovation Park, together forming a research and demonstration cluster centered on smart manufacturing and robotics. This industrial ecosystem allows foreign companies to quickly access critical components, carry out system integration, and establish production lines. Unlike many countries where manufacturing depends on multi-national supply chains, Taiwan enables end-to-end processes—including design, production, assembly, testing, and validation—locally, significantly boosting efficiency and reducing international supply chain risks. Moreover, Taiwanese companies are known for technical agility and strong customization capabilities. Foreign investors establishing assembly bases or partnering with ODM/OEM providers in Taiwan can rapidly scale up to mass production while enhancing localized production and services for the broader Asian market. This cluster-based, modular supply network is one of Taiwan's strongest incentives for attracting foreign investment and collaboration in the robotics sector.



Innovation R&D and Talent Collaboration: Establishing Local R&D Centers and Technology Alliances

Taiwan possesses a highly skilled talent pool and a strong foundation in industry-academia-research collaboration, making it an ideal location for multinational companies to establish R&D operations.

Leading universities such as National Cheng Kung University, National Taiwan University of Science and Technology, National Sun Yat-sen University, and National Yang Ming Chiao Tung University have established robotics and smart manufacturing research centers, actively partnering with industry to develop applications in AI sensing, autonomous navigation, and human–robot collaboration. Foreign investors can leverage Taiwan’s innovation ecosystem through academic partnerships or by joining national startup platforms such as Taiwan Tech Arena (TTA), the AI_ROBOT@STSP base, and NARLabs, collaborating with local startups and research teams to co-develop innovative solutions, establish joint laboratories, or set up R&D centers. For example, NVIDIA has partnered with several medical centers to develop AI-powered medical robots, while Foxconn has joined forces with Taichung Veterans General Hospital and Japan’s Kawasaki Heavy Industries to co-develop the AI nursing robot Nurabot. These cases highlight the value foreign companies place on Taiwan’s R&D capacity. Taiwan’s engineering talent is consistently cultivated, internationally minded, and competitively priced compared with other global markets, making it attractive for establishing medium- and long-term R&D operations. In addition, the government and ITRI provide technology transfer platforms, pilot production verification, and innovation funding programs, enabling foreign firms to efficiently transform R&D outcomes into commercial applications.



Policy & Market Support: Leveraging Incentives & Asia-Pacific Market Advantages

Taiwan’s government strongly supports the development of smart manufacturing and the robotics industry, introducing a range of policies and subsidy programs in recent years. These include the Smart Machinery Development Program, subsidy programs for smart-manufacturing demo-site pilots, advanced-manufacturing industry upgrade and transformation projects, and the Ministry of Digital Affairs’ programs for AI applications. Through partnerships with local firms or by establishing their own operations, foreign companies can benefit from multiple incentives such as tax breaks, access to demonstration and testing facilities, and R&D funding support. The government also encourages multinational corporations to set up Asia-Pacific R&D headquarters and advanced manufacturing centers, providing land, facilities, and talent-matching services in locations such as the STSP, Shalun Smart Green Energy Science City, and the Taichung City Precision Machinery Technological Park. At the same time, Taiwan’s dense network of SMEs and responsive market environment make it an excellent platform for product design, testing, and iterative improvement. Combined with its geographic position as a hub in Asia and its convenient international trade links, Taiwan is an ideal launchpad for foreign investors looking to test products locally and expand into Southeast Asia, Japan, and South Korea. Overall, Taiwan offers not only strong policy support but also a collaborative, internationally friendly environment, making it a strategic high ground for foreign firms entering the Asian smart robotics market.

Investment Incentives

(A) Tax Incentives

In addition to the standard 20% profit-seeking enterprise income tax rate, Taiwan offers the following tax incentives to encourage foreign investment, support industrial innovation, and promote industry–academia collaboration:

Table 1 Tax Incentives

Incentive	Details
R&D Expenditure	Companies may deduct up to 15% of qualified R&D expenditures from their profit-seeking enterprise income tax in the current year, or up to 10% spread evenly over three years.
Technology Licensing	Royalties paid to foreign companies for imported technologies or products involving patents, copyrights, or other proprietary rights are exempt from profit-seeking enterprise income tax, subject to MOEA approval.
Equipment Procurement	- Companies or limited partnerships that invest NT\$1 million–NT\$2 billion in smart machinery, 5G systems, cybersecurity, AI, or energy-saving and carbon-reduction technologies may choose: (1) up to 5% of the expenditure deducted in the current year, or (2) up to 3% deducted over three years, with an annual cap of 30% of income tax payable. - Imported machinery which local manufacturers cannot produce are eligible for import tariff exemption.
Employee Stock Compensation	Employees receiving up to NT\$5 million in stock-based compensation may defer taxation until the shares are actually transferred (e.g., sold or gifted), rather than having them taxed in the year they are granted.

Foreign Specialist Professional	Qualified foreign professionals are exempt from income tax on 50% of annual salary income exceeding NT\$3 million, which is not included in their consolidated taxable income.
Tax Incentives for Businesses in industrial parks	Companies that move into technology industrial parks (TIP), science parks, and free trade zones (FTZ) are exempted from import tariffs, excise tax, and business tax on machinery and equipment, raw materials, fuel, supplies, and semi-finished products
Miscellaneous Sources	Companies or limited partnerships can reinvest their undistributed earnings within three years following the year they were generated. Provided that it meets a certain threshold, investments used for constructing or purchasing buildings, hardware, software, or technology for business operations, may be deducted from the current year's undistributed earnings, exempting them from the additional 5% profit-seeking enterprise income tax.

(B) Investment Incentives

Global Innovation Partnership Initiatives Program

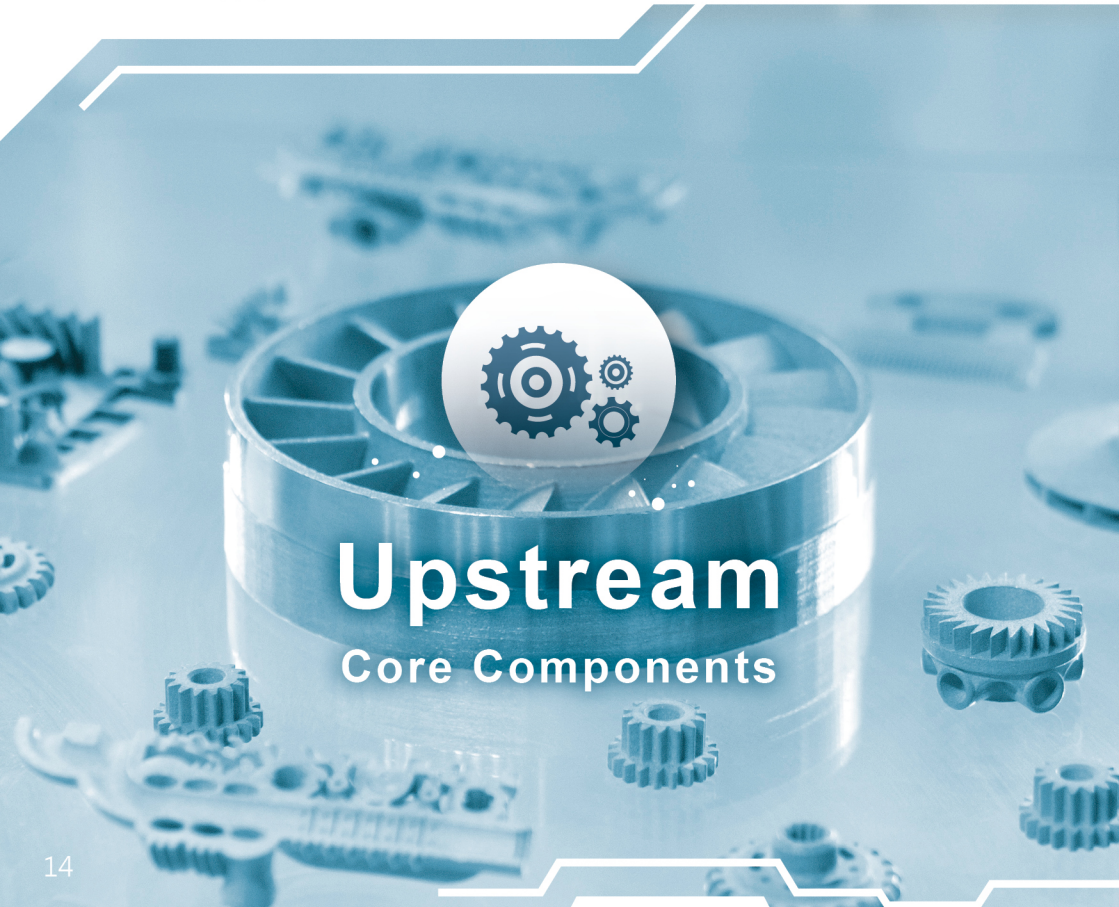
To encourage foreign enterprises with complementary strengths to conduct innovative R&D in Taiwan, the government provides funding of up to 50% of total R&D expenses for projects that are jointly developed with local partners and exceed Taiwan's current industrial capabilities. Eligible projects must deliver strategic value—such as developing critical or integrative technologies needed by industry, enhancing R&D efficiency, accelerating commercialization, building R&D supply chains, or expanding international market reach—and are subject to approval by the Ministry of Economic Affairs.

Taiwan Industry Innovation Platform Program (TIIP)

To guide the industry towards high-value development and encourage companies to enter the high-end product application market to enhance the overall industry's added value rate, the MOEA Industrial Development Administration is promoting the Taiwan Industry Innovation Platform Program (TIIP), which provides thematic R&D project subsidies of 40-50% for companies with R&D teams in Taiwan and up to 40% subsidy for self-proposed R&D projects from enterprises.

Representative Taiwan Businesses

Taiwan's smart robotics industry spans system integrators, automation equipment suppliers, industrial computer makers, vision/optical sensing specialists, and transmission / control component manufacturers. Below are representative companies across the up-, mid-, and downstream segments of the supply chain.



Upstream Core Components

The upstream supply chain covers key components, module manufacturing, sensors, control systems, and drive elements—forming the foundation for the stable development of the robotics industry. Representative companies include HIWIN Technologies in precision motion components; Delta Electronics in motors and drives; Advantech in control systems and programmable logic controllers (PLCs); and SOLOMON in sensors and vision modules.

1. HIWIN

HIWIN is a global leader in precision motion control and smart automation, and the first Taiwanese company to expand its motion-component expertise into both industrial and medical robotics. Its core products, such as ball screws and linear guideways, are widely used in robotic arms and automation equipment. The company has also independently developed multiple-articulated and collaborative robots that integrate vision modules, reducers, and controllers to enhance overall technical capabilities.

Together with its subsidiary HIWIN MIKROSYSTEM, the company has long invested in robotics innovation. In 2024, it partnered with a US startup to co-develop logistics robots, with trial production scheduled for the second half of 2025, while also supplying critical joint components for a leading US humanoid robotics manufacturer. HIWIN is actively transforming into a “smart robotics solutions provider” by combining technology R&D, capital investment, and global expansion.

2. DELTA

Delta is a global leader in power and energy management that has transformed from an electronic component manufacturer into a smart manufacturing and automation solutions provider. Its strategic scope now spans AI, robotics, smart factories, electric vehicles, energy management, and edge computing. Delta has independently developed key components including servo motors, drives, controllers, human-machine interfaces (HMI), and vision / perception systems. With an in-house production rate exceeding 80%, the company enjoys a significant cost advantage.

By integrating machine vision software, industrial cameras, PLCs, HMIs, and servo systems, Delta has launched horizontal articulated robot solutions that support the digital transformation and smart upgrading of traditional industries. In 2024, Delta invested in the German startup NEURA Robotics to jointly develop robotic arms and humanoid robots. In 2025, it unveiled the AI-enabled collaborative D-Bot with cognitive capabilities at Hannover Messe, underscoring its ambition to expand its global footprint in smart manufacturing and robotics.

3. Advantech



Advantech is a global leader in IoT intelligent systems and embedded platforms, with products spanning edge computing, smart sensing, AI modules, human-machine interfaces (HMIs), and industrial communication equipment. Its solutions are widely deployed across manufacturing, transportation, retail, healthcare, and energy sectors. In robotics, Advantech focuses on Autonomous Systems and Robotics (AS&R) applications. In 2024, it established a dedicated business unit to drive R&D in AMRs, AGVs, and robotic arms, with plans to mass-produce 1,000 humanoid robots by 2025.

The company actively partners with leading chipmakers—including NVIDIA, Qualcomm, AMD, MediaTek, and NXP—to enhance AI performance. At the same time, it integrates sensing technologies such as MIPI/GMSL cameras, IMUs, and LiDAR, while collaborating with global system integrators like Autoware Foundation (Japan), NODE Robotics (Germany), and Turing Drive (Taiwan) to accelerate software-hardware integration and commercialization of robotics solutions.

4. Asia Optical



Asia Optical is a global leader in optical lenses and sensing modules, with expertise spanning optical design, imaging lenses, and sensor integration. Its products are widely used in consumer electronics, automotive imaging, medical devices, and machine vision applications. In recent years, Asia Optical has launched LiDAR modules specifically designed for robotics and automation. These modules feature high-precision distance measurement and strong resistance to ambient light interference, making them ideal for AMRs and AGVs.

The company's LiDAR systems combine VCSEL emitters with advanced sensing components to enable time-of-flight (TOF) measurement and 3D point cloud output. Leveraging its proprietary lens modules and imaging technologies, Asia Optical has already begun shipping LiDAR solutions for internationally recognized humanoid robot projects, successfully entering the global supply chains of leading brands in robotics.





5. SOLOMON



Originally a distributor of electronic components, Solomon has expanded into automation control, optoelectronics, and energy solutions, transforming into a leading brand in smart technologies and industrial automation. Solomon has long specialized in AI vision and robotic integration, developing proprietary modules such as AccuPick, SolMotion, and SolVision for 3D bin picking, vision-guided robotics, and defect inspection.

At COMPUTEX 2025, the company showcased an intelligent inspection platform powered by NVIDIA Isaac Manipulator, capable of high-precision inspection. The system also supports multiple brands of robotic arms and AMR-based inspection. At the same venue, Solomon also unveiled prototypes of humanoid robots and robotic dogs equipped with AR and ChatGPT applications for inspection and operational assistance. With its strength in AI vision software and robotic platform integration, Solomon has deployed solutions across inspection, picking, and smart patrol operations. It has also become a key machine vision technology partner in NVIDIA's automated factory ecosystem.



Midstream

Robot Manufacturing

The midstream segment focuses on the development of complete robotic systems and functional modules, integrating upstream components into deployable solutions. These companies also provide customized applications tailored to industrial needs. Representative players include Techman Robot and Foxlink Group.

1. Techman Robot



Techman Robot, a subsidiary of Quanta Computer, is one of the few companies worldwide with proprietary cobot core technologies. Within just three years of its founding, it became the world's second-largest cobot manufacturer. Its smart cobots integrate vision recognition, AI algorithms, and human-robot interaction, enabling lower installation and maintenance costs as well as high flexibility and efficiency in production line changeovers.

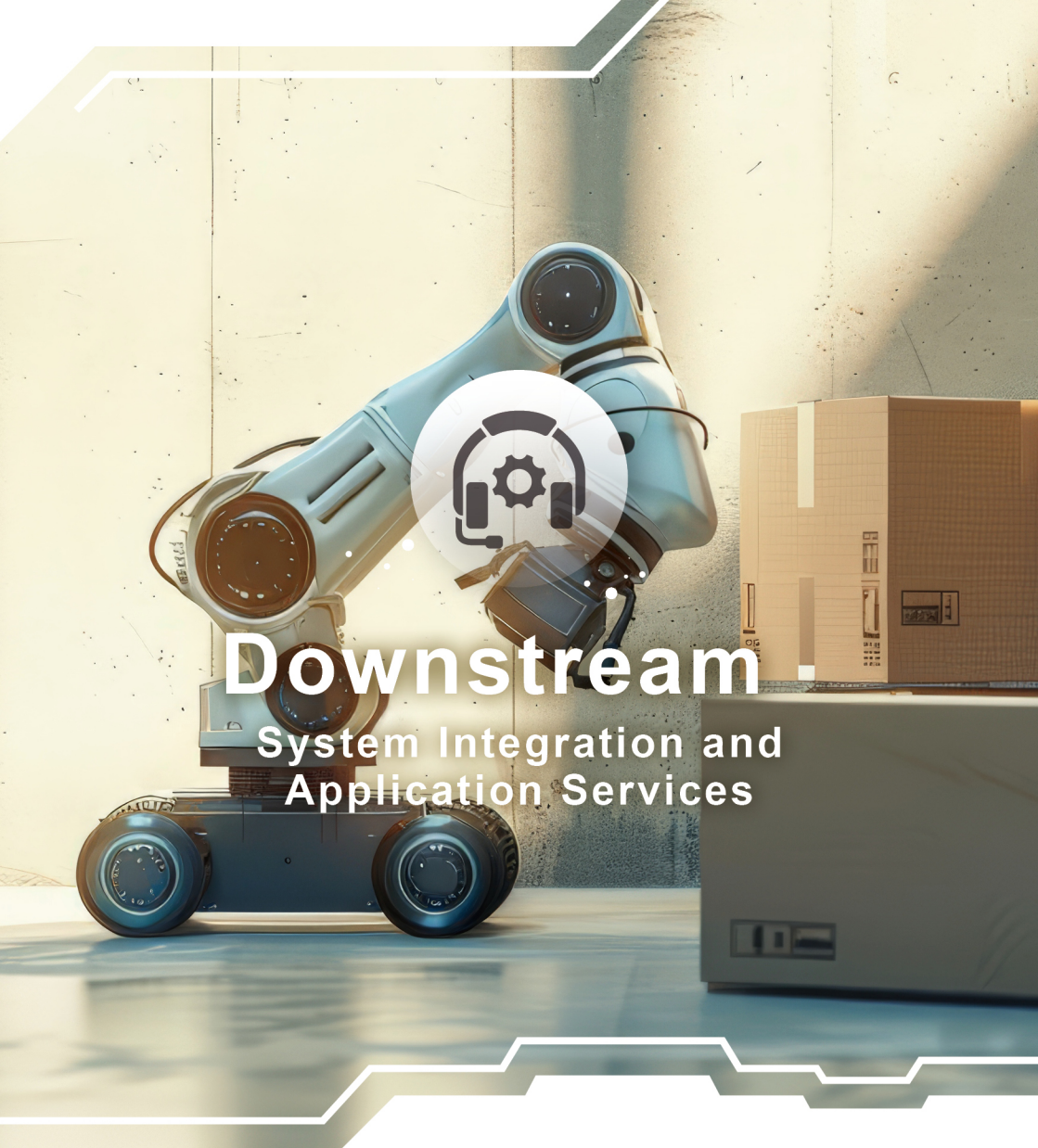
In 2023, robotic arms accounted for 89% of company revenue, and Techman announced plans to expand into humanoid robotics. In 2025, Techman signed an MoU with CSBC Corporation Taiwan and US smart welding company AMET to jointly develop shipbuilding robots. In the same year, the company partnered with MSI (Micro-Star International) to integrate AMRs with cobots for wafer box handling and cleanroom loading / unloading applications. Techman has established itself as the global benchmark for MIT-made smart cobots, and is widely regarded as a flagship brand for AI and robotics integration in Taiwan.

2. Foxlink Group



Foxlink Group, originally known for its connectors and cables, has expanded into power management, wireless communication, and optical products. In recent years, it has aggressively transformed its portfolio to focus on AI and smart robotics solutions. Leveraging the group's expertise in batteries, camera modules, and flexible printed circuits, Foxlink promotes the deployment of AI-driven robotics in smart factories, renewable energy plants, office buildings, and unmanned facilities.

In 2024, Foxlink established its robotics subsidiary SYNC ROBOTIC, which developed an AI inspection robotic dog within just seven months to meet the needs of facility patrol and security. The company further expanded into the U.S. market by acquiring security brand Luminy Systems. In addition, Foxlink partnered with Japan's UBITUS to co-develop Ubilink, Taiwan's most powerful supercomputing center, underscoring its strong momentum in AI development. Today, Foxlink is rapidly emerging as a key player in smart manufacturing, campus automation, and energy applications, enhancing both the group's and Taiwan's competitiveness in the robotics industry.



Downstream

System Integration and Application Services

The downstream segment focuses on application deployment, system integration, and service operations, serving as the critical end-user layer of the robotics value chain. Companies in this tier take complete robots produced by the midstream manufacturers and adapt them for various real-world applications. Representative players include Pegatron and Mirle Automation.

1. Pegatron



Pegatron, a leading provider of electronic manufacturing services (EMS), has long specialized in computer peripherals, communications devices, and consumer electronics, with strong capabilities in peripheral device design and manufacturing. In recent years, Pegatron has aggressively expanded into robotics and AI-based autonomous systems. In 2024, it established a 1,000-person R&D team focused on humanoid robots and industrial robotic arms, building expertise in AI, servo motors, and integrated system control.

In 2025, the company announced plans to invest US\$85 million in a new US subsidiary to support AI server and robotics production. By combining AI servers, digital twin technologies, embedded AI, and servo systems—and integrating NVIDIA's Omniverse platform with advanced global AI chip solutions—Pegatron has demonstrated strong capabilities in smart factory and robotics hardware integration. Leveraging its global manufacturing footprint and capital market presence, Pegatron is now evolving from a traditional EMS provider into a major new force in AI+ and full-scale robotic systems manufacturing.

2. MiRLE Automation



Mirle began as a supplier of panel and semiconductor handling equipment and has since expanded into smart logistics and AI robotics. The company offers end-to-end capabilities in factory design, manufacturing, and system integration, with a focus on semiconductors, panels, smart logistics, and AI platforms. In 2024, Mirle's revenue breakdown reflected its diversified portfolio: 47% from semiconductor systems, 21% from panel equipment, 16% from robotics and smart logistics, and 6% from AI applications.

With more than 35 years of experience in industrial robotics, Mirle joined NVIDIA's Omniverse platform in 2023 to create virtual–physical integrated smart factories. It also partnered with its subsidiary Main Drive to mass-produce reducers, strengthening its role in intelligent semiconductor logistics systems. Looking ahead to 2025, Mirle plans to deploy humanoid and semi-humanoid robots in semiconductor manufacturing, logistics, and EMS unmanned factories. This move underscores its ambition to transform into a comprehensive AI and robotics integration solutions provider.

Landmark Foreign Investments

1. Intel (US)

Intel, the world's second-largest semiconductor company and the pioneer of the x86 processor architecture, has maintained a deep presence in Taiwan for decades. The company has transformed from a pure hardware supplier into a strategic partner in AI and automation ecosystems. Beyond supplying processors and vision chips, Intel collaborates with local robotics system providers such as NexCOBOT to develop x86-based collaborative and safety robot platforms, while also working with academia to establish 5G+AI robotics testbeds.

In 2024, with support from Taiwan's National Science and Technology Council, Intel partnered with National Taiwan University to launch Taiwan's first AI-powered quadruped robot (robotic dog), leveraging Intel CPUs as its computing core. Intel also plays an active role in AI-driven medical and navigation robotics, including its collaboration with Brain Navi Biotechnology on the world's first NaoTrac neurosurgical navigation robot, which integrates vision, AI, and robotics to support precision minimally invasive surgery.

2. Bosch Rexroth (Germany)

A subsidiary of the Bosch Group, Bosch Rexroth is a global leader in motion and control technologies, offering customized solutions in industrial automation, mobile machinery, and renewable energy. Its product portfolio includes hydraulic systems, linear motion, gears, electronic controls, and integrated industrial hardware–software platforms. In 2022, Bosch Rexroth entered the seven-axis cobot market by acquiring a majority stake in Kassow Robots (Denmark), subsequently launching the KR Series and Edge models to help SMEs accelerate adoption.

Over the past 15 years, the company has played a critical role in smart device markets through its CtrIX AUTOMATION platform, which breaks down barriers between machine control, IT systems, and IoT, enabling production data visualization and boosting factory efficiency. In Taiwan, Bosch Rexroth has collaborated with local firms such as Woofwu Precision Technology, supporting industrial product transformation and upgrading efforts.

3. Yaskawa Electric (Japan)

Yaskawa Electric is one of the world's four leading industrial robot manufacturers, with a portfolio spanning motion controllers, servo drives, inverters, and industrial robots. Its Taichung facility specializes in smart manufacturing technologies, including 2D/3D vision guidance, six-axis force sensing, automation integration, and human-robot collaboration systems. The company also develops customized solutions for the biotech and medical industries.

By establishing an R&D center in Taiwan, Yaskawa has signaled strong confidence in Taiwan's precision machinery sector and recognition of its growing smart manufacturing ecosystem. Collaborations with firms in the Central Taiwan Science Park have advanced the localization of cutting-edge robotics applications, supporting the region's transition toward intelligent precision manufacturing. Notably, this project represents the first foreign investment in the Central Taiwan Science Park to benefit from new preferential policies introduced under recent legal amendments. It highlights both the effectiveness of Taiwan's investment promotion strategies and its strong appeal to global industry leaders.





4. Schneider Electric (France)

Schneider Electric is a global leader in energy management and optimization solutions, offering products ranging from circuit breakers and sensors to controllers, widely applied across energy infrastructure, industrial facilities, buildings, and data centers. The company integrates cobots, digital twins, cloud and edge computing technologies, linking logistics, machine vision, and multi-robot coordination.

As part of its global strategy, Schneider is co-developing high-density rack systems designed for power distribution, cooling, control, and AI computing—building the infrastructure backbone required for AI-driven robotics. In Taiwan, Schneider has strengthened its robotics deployment and digital transformation capabilities. It has partnered with Tenpro Advanced Technologies to introduce the Lexium Cobot, enhancing energy efficiency and production optimization in smart factories. At the same time, it is working with Dong Fong Tech (DFT) to establish an AI supercomputing center, accelerating the advancement of smart manufacturing toward the AI robotics era.

5. ABB (Switzerland)

ABB is a global leader in engineering and technology solutions, with businesses spanning industrial automation, motion control, and robotics. Its mission is to enhance efficiency and productivity across the energy, industrial, transport, and infrastructure sectors. A pioneer in robotics, ABB introduced the world's first all-electric, microprocessor-controlled industrial robot (IRB 6) as early as 1974, marking the start of modern smart manufacturing. By 2025, ABB will have more than five decades of leadership in robotics innovation, continuing to shape industry standards.

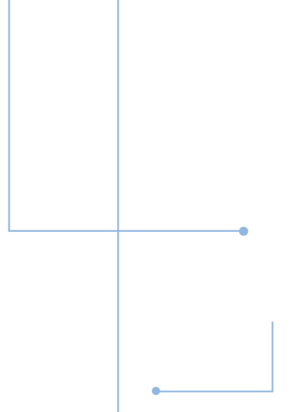
Its portfolio includes industrial and cobots, autonomous mobile robots (AMRs), control platforms, software, and data integration services. In Taiwan, ABB has worked closely with local integrators, notably launching a New Southbound Market expansion strategy in 2023 with Qisda Technology, supporting automation upgrades in the automotive parts and metalworking industries. In 2024, ABB further strengthened its robotics portfolio by acquiring Sevensense (Switzerland), a leader in AI-powered navigation, cementing its position in the next generation of autonomous mobile robotics.

6. Universal Robots (Denmark)

Universal Robots (UR), part of Teradyne Robotics (USA), is the world's leading brand in cobots, with over 100,000 units shipped worldwide and adoption across diverse industries. Its competitive advantage lies in the intuitive PolyScope software, award-winning training resources, robust after-sales support, and the world's largest cobot ecosystem, providing customers with flexibility and innovation at scale.

In 2024, UR launched the UR AI Accelerator, an expandable platform designed to help developers accelerate AI-driven cobot applications. Building on this, in 2025 UR partnered with ACE Solution to integrate UR cobots with hardware, software, AI vision, and customized tooling for advanced applications in semiconductor, 3C electronics, and biomedical production lines, including automated loading / unloading, quality inspection, and assembly. The same year, UR established the world's first UR robot academy training center at National Chung Hsing University, reinforcing Taiwan's role as a hub for cobot innovation and training. UR also hosted its Collaborate Tour in Taiwan for the first time, showcasing its AI accelerator and new mobile cobot models, underscoring its commitment to expanding its presence in Taiwan's smart manufacturing sector.

Appendix



1. Executive Yuan Official Website

<https://www.ey.gov.tw/Page/5A8A0CB5B41DA11E/e4b398b3-d2c6-403b-9347-332f86bd4637>

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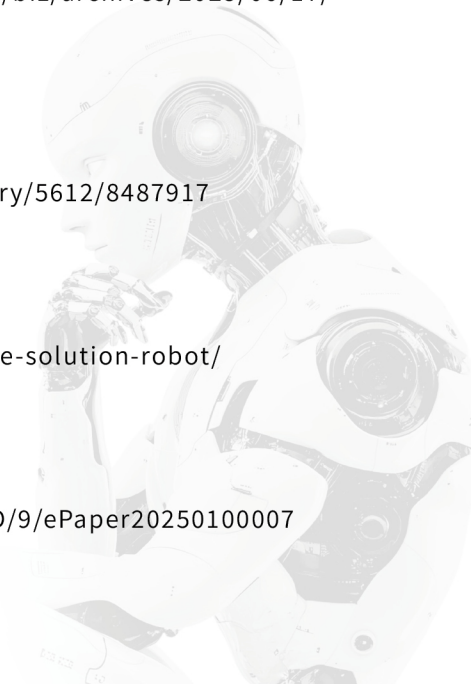
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