



Key Innovative Industries in Taiwan

Information Security



Information Security

Next-Generation Vehicle

Communications Industry

Internet of Things

Semiconductor Industry

Biopharmacy Industry

Smart Machinery

Circular Economy

Green Energy

Service Industry

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Policy Initiatives

1 | Focus of Policy |

Taiwan has adopted strategies and regulations in support of the development of the information security industry in recent years. The Executive Yuan announced the "Phase 5 National Strategy for Cybersecurity Development Program (2017-2020)" in November 2017 and included "enhanced development of the domestic information security industry" as one of its goals. The four major strategies that focus on "comprehensive information security infrastructure, establishment of a joint national information security defense system, improvement of autonomous capabilities of the information security industry, and cultivation of information security professionals" were introduced. In March 2018, the "Information Security Industry Development Action Plan" was further announced. The goal is to cultivate 40 information security startups, increase employment in the information security industry to 10,000, and to increase the information security's output value to NT\$78 billion by 2025. The President, during her inauguration speech in May 2020, included information security as one of the six major core strategic industries in order to develop an information security industry that combines 5G, digital transformation, and national security. The Department of Cyber Security under the Executive Yuan is currently preparing the "Draft Phase 6 National Strategy for Cybersecurity Development Program (2021-2024)," which sets out three major goals: "make Taiwan become the research and training hub for information security in the Asia-Pacific region," "build a proactive safeguard network," and "create a network security environment through collaboration between the public and private sectors." By achieving these goals, we can turn Taiwan into a "smart nation" with robust security.

Taiwan's "Cyber Security Management Act," which officially took effect on January 1, 2019, will contribute to the effective planning of information and communication security management policies and provide for their enforcement in government agencies and specific non-government agencies (including key infrastructure providers, state-owned enterprises, and government-endowed foundations) to expedite the construction and improvement of a cybersecurity environment in Taiwan and to protect national security and the public interest.



2

Information Security Industry Promotion Plan of the Industrial Development Bureau

The Industrial Development Bureau under the Ministry of Economic Affairs established the "Emerging Security Ecosystem Promotion Program," the "Plan for the Building of an Information Security Industrial Environment and Promotion of Standard Testing and Certification," the "Information Security Training and International Promotion Program", and the "Pilot Project for Promotion of Emerging IoT Cybersecurity Solutions" to take on important roles in promoting the development of the information security industry in Taiwan. Firstly, the Bureau intends to help enhance the information security protection momentum for the industry and to boost awareness of and demand for information security in the industry through the "demonstrations of application scenarios," particularly in the fields of smart medicine and smart manufacturing, which are prioritized in Taiwan. By working with domestic and international information security companies that specialize in network protection, system security, data protection, and information security consultancy, the Bureau has identified various potential information security loopholes in applications, network products, IoT devices, and cloud services. The government in Taiwan has opened certain parts of state-run enterprises, such as the CPC, Taiwan Water Corporation, and TaiPower, for operators to conduct information security tests and attack-defense drills for key infrastructures. Secondly, in terms of the "development of information security solutions," the Bureau uses information security test sites and information security integration service platforms to incorporate the capabilities of the information security community and white hat hackers (ethical hackers that specialize in protecting information security) to conduct information security tests and develop overall solutions. For operators, they can use the aforementioned measures to accumulate test data to develop information security solutions for all sectors.

Overview of Industrial Development

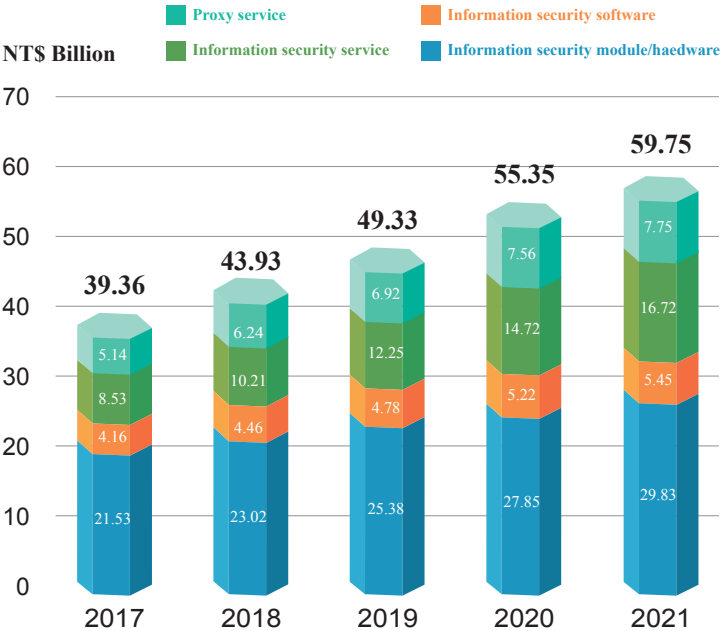
1 | Output Value |

The information security industry in Taiwan benefits from Taiwan's advantage in the manufacturing of hardware such as network products. As such, information security hardware modules and equipment account for 50% of overall output value. They are mainly network and gateway security products, followed by terminal data protection products. In terms of information security software, most companies in Taiwan focus on developing products for data loss prevention, content protection, and access control. As for services, an increasing number of inspections and tests on ICT products and applications (APPs) has resulted in information security tests, identification, and consulting services becoming the main businesses of emerging information security companies.¹

The overall output value of the information security industry in Taiwan in 2019 was approximately NT\$49.34 billion, a 12.3% increase from 2018. The main reason for this growth lies in the increased use of biometric authentication modules (e.g. fingerprint identification modules, iris recognition modules, etc.) and trusted platform modules (TPMs) in smart phones, laptop computers, and servers, which has increased the demand for cybersecurity hardware products. It is worth noting that information security services (such as information security testing, operational management, and dealership of related products) are likely to become the primary drivers of growth in the information security industry. Output value is expected to break the threshold of NT\$21 billion in 2021. The composite annual growth of

¹ Refer to the "Information Security Industry Development Action Plan (2018-2025)" from the National Information and Communication Security Council.

the market is projected to reach 21% by 2023. The world faces an increasingly challenging information security environment where threats to information security continue to rise every day. With demands for the development of cloud applications, artificial intelligence, and the IoT, the output value of the information security industry in Taiwan is expected to increase to NT\$55 billion in 2020, and could reach NT\$60 billion in 2021.



Source: Industry, Science and Technology International Strategy Center, ITRI.

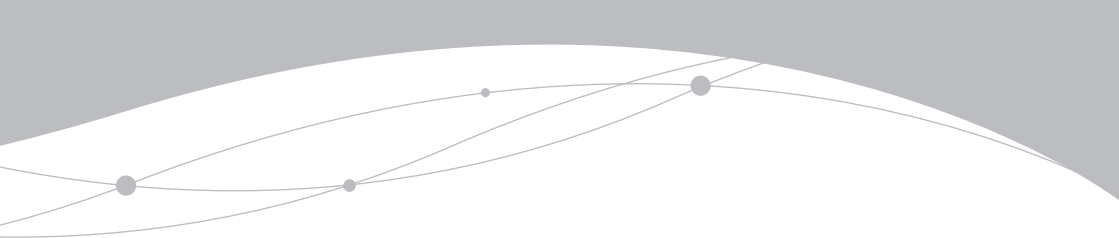
Figure 1 Overview of the output value of Taiwan's information security industry 2017-2021



2 | Industrial Clusters |

Information security protection applications and services in Taiwan are mainly focused on meeting demand from the financial, digital information, and healthcare industries. Statistics show that there were around 8,500 persons working in the information security sector in Taiwan in 2017. The number is expected to grow to 10,000 by 2025. Taipei and Hsinchu are home to the semiconductor, ICT, optoelectronics, biotechnology, and financial sectors, where the two core technology districts in Taiwan -- Neihu Technology Park and Hsinchu Science Park -- are located. The information security industry is also mostly located in these two districts.

In Taiwan's information security industry, information security modules and hardware are driving growth in the production of cloud and high-speed exclusive network security equipment to meet the growing demand for cloud-based applications and services. The best known service providers include Zyxel Communications Corp., the only network equipment manufacturer that has been ICSA certified and Common Criteria certified for 19 years in a row, and network security hardware OEM service providers such as Lanner Electronics and CASwell. Nearly 80% of network security hardware platforms around the world are from Taiwan. In terms of information security software, most companies in Taiwan focus on developing products for data loss prevention (DLP), content protection, and access control. Although the scale of such companies and overall output value are low, there are plenty of companies with great potential in terms of niche strengths and advantages such as EzVoN Network and Openfind Information Technology. As the testing ratios of information and communication products and application programs increase, the demand for daily operation monitoring is growing significantly. Information security tests, identification, and consulting services are prioritized for development. Acer Cyber Security Inc. is a well known service provider; it has the maximum operational momentum, the biggest number of customers, the largest coverage of incidents, and the security operation center (SOC) that is most experienced in coping with incidents.



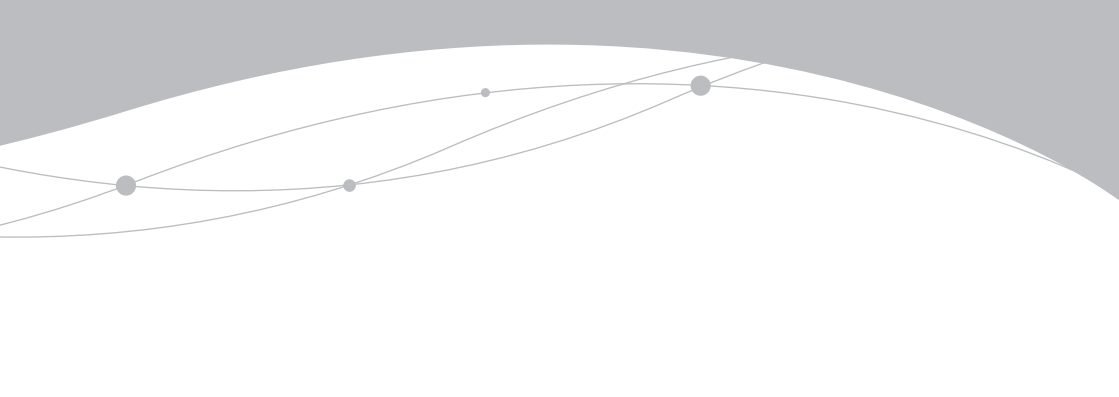
Given its robust information and communication capabilities, outstanding talent, and optimal information security industrial environment, Taiwan is gradually becoming a preferred choice and partner internationally when it comes to information security. Japan's Rakuten Group, for example, formed its information security "Tiger Team" in Taiwan in 2019. The team will work with Rakuten teams in India, Japan, Europe, and elsewhere in the future. The American Institute in Taiwan (AIT) plans to assist with the establishment of an International Cybersecurity Center of Excellence in Taiwan to facilitate collaboration in information security among the public and private sectors in Taiwan and throughout the Indo-Pacific region in fields such as network security, 5G, and emerging information security standards.



Potential Investment and Collaboration Opportunities in Taiwan

1 | Position Information Security Hub Helps with Development and Testing

As the network environment and applications gradually gain prominence, new forms of attacks have become increasingly complicated and diverse. We can no longer rely on singular or concentrated protection methods to respond to these threats. As monetary losses and business reputation losses caused by information security incidents continue to increase, increasing information security protection and seeking specific and effective information security solutions have become key tasks for all sectors, all around the globe. Major international information security firms have also shifted the development of information security solutions to meet demands for "integrated single-point functions," "continuous and uninterrupted monitoring," and "real-time big data computing and visualization interfaces."



Taiwan has a unique international position and therefore occupies a key position in global information security. Many hackers have honed their skills in new types of attacks or learned new methods of attacks here and we have become a veritable "cybersecurity firing range" for the world. Given that building information security intelligence sharing mechanisms and using regional allied defense strategies to reduce threats are the global trend of information security nowadays, Taiwan's experiences are a great reference. In particular, unique attacks, analyses of attack models, and a wealth of information security defense experiences and data accumulated in Taiwan have become valuable for the development of anti-hacking strategies by governments or solutions by information security companies.

Secondly, local governments are proactively establishing diverse, comprehensive, and suitable information security testing sites for the research and development of domestic information security technologies. For instance, the Smart Machinery Promotion Office in Taichung can be used in information security training and attack-defense drills in the operational technology (OT) sector. The 5G information security experimental site in the Startup Terrace startup village is a 5G-ready site that facilitates deployment and testing by businesses. 5G information security tests are performed, and safeguard solutions go through actual attacks. The IoT Cyber Security Test Center at the Hutoushan Innovation Hub offers the smart industry one-stop information security test services. They provide the strong support required to develop the information security industry in Taiwan. The Southern Taiwan Information Security Cluster is also being promoted, and the Shalun Smart Green Energy Science City is driving the formation of a Southern Taiwan IoT and Information Security Center.

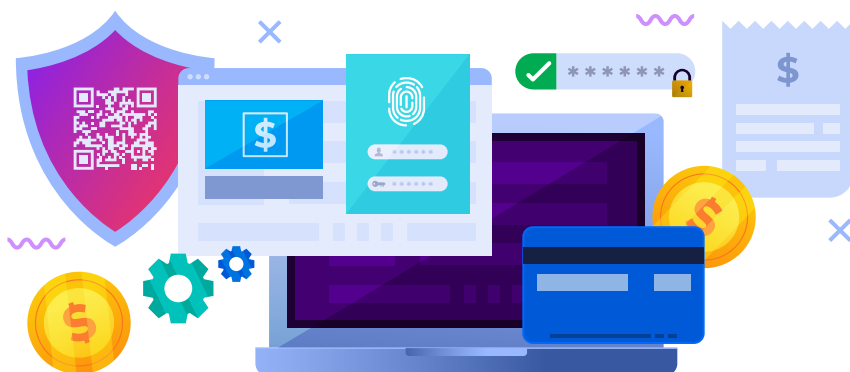
It is worth mentioning that the information security environment in Taiwan is drawing attention in the US and Japan. AIT and Taiwan jointly held the Cyber Offensive and Defensive Exercises for the first time in November 2019, for example, and Taiwan is becoming an important information security partner of other countries.

2

Diversified Industrial Application Scenarios Help Explore Business Opportunities

The advantages of Taiwan's information security industry are based on Taiwan's outstanding capacity for manufacturing of network communication hardware equipment with sophisticated technologies, and autonomous R&D capacities have increased with investments from startups. The information security service industry has also grown rapidly. Although information security service providers in Taiwan remain small, they are familiar with the demands of small and medium enterprises in different industries for information security protection and the root of problems because of their extensive experiences in the local market. Foreign companies can target individual industries and jointly develop innovative solutions with Taiwanese companies, and then seize opportunities on the global market.

Besides the northern industrial cluster of Taiwan, the Shalun Smart Green Energy Science City, with its excellent conditions for promoting emerging information security application scenarios, will hopefully motivate foreign companies to invest and explore prospective partnerships in Taiwan, because our government is carrying out programs to promote diversified industrial applications (such as programs for smart green energy, smart grid, and driver-assistance vehicles).





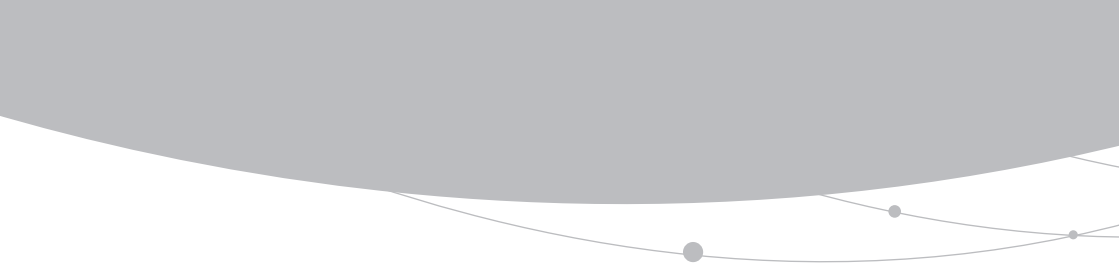
Investment Incentive Measures

1 | Tax incentives |

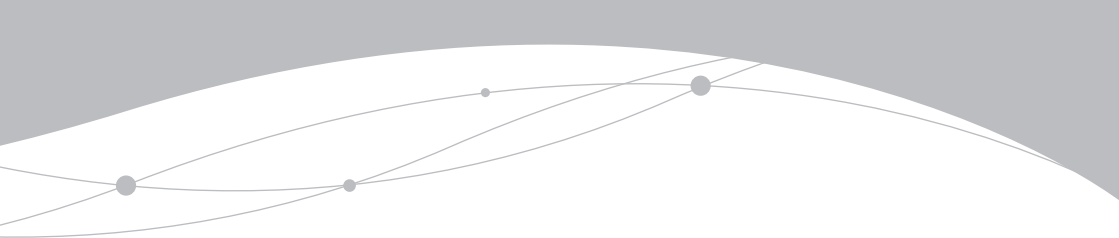
Taiwan's profit-seeking enterprise income tax rate is 20%. To encourage foreign companies to invest in Taiwan, support industrial innovation, and promote industry-academia collaboration, foreign companies are eligible for the following preferential taxes (Table 1):

Table 1 Preferential taxes

Item	Incentives
R&D and introduction of technology or mechanical equipment	<ul style="list-style-type: none">• Up to 15% of the company's R&D expenditures may be deducted from its profit-seeking enterprise income tax for current year.• Royalty payments to foreign companies for imported new production technologies or products that use patents, copyrights, or other special rights owned by foreign companies is, with the approval of the Industrial Development Bureau, MOEA, exempt from the corporate income tax.• Imported machinery which local manufacturers cannot produce are eligible for duty-free treatment.



Item	Incentives
Investment in smart machinery / 5G	<ul style="list-style-type: none"> ● Smart machinery: Automatically scheduled, flexible, or mixed-model production lines that utilize big data, AI, and IoT. ● 5G: Related investment projects include 5G communication systems, and new hardware, software, technology, or technical services. ● For investments of no less than NT\$1 million and no more than NT\$1 billion, either "5% of investment spending deducted from profit-seeking enterprise income tax (current FY)" or "3% of investment spending deducted from profit-seeking enterprise income tax, if total spending spread over three years" may be selected, but the total amount deducted may not exceed 30% of corporate income tax that year. ● The applicable periods are January 1, 2019 through December 31, 2021 (smart machinery) and January 1, 2019 through December 31, 2022 (5G).
Technology investment / Stock-based employee compensation	<ul style="list-style-type: none"> ● The worth of shares acquired through technology investment/stock-based employee compensation can be excluded from the taxable income for that year (up to NT\$5 million). In addition, those that meet related criteria are eligible for reduced taxes based on "acquisition price" or "transfer price," whichever is lower.



Item	Incentives
Foreign Special Professionals	<ul style="list-style-type: none"> Foreign special professionals who meet criteria are eligible for a 50% deduction of total income tax for amounts exceeding NT\$3 million.
Setting up operations in industry parks	<ul style="list-style-type: none"> Companies that set up operations in export processing zones, science industrial parks, or free trade ports are eligible for exemptions on import duties, commodity tax, and business tax for the import of machinery and equipment, ingredients, fuel, materials, and semi-finished products for their own use.
Others	<ul style="list-style-type: none"> Companies that use undistributed earnings to engage in substantive investments may exclude the amount when calculating their profit-seeking enterprise income tax.





2 | Subsidies |

1. The Global R&D Innovation Partner Program

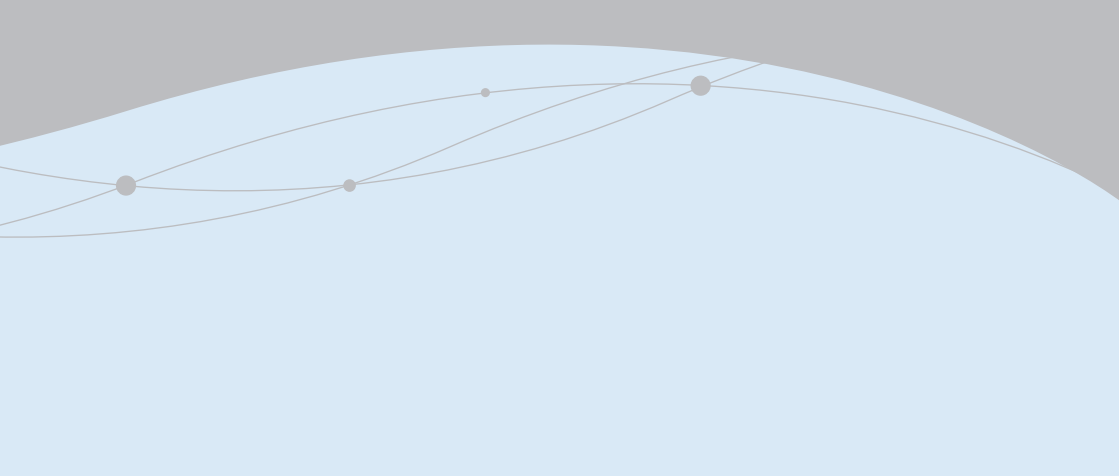
Some foreign companies have a high degree of complementarity with Taiwan's industries. To encourage them to engage in R&D and innovation activities in Taiwan, such companies, after gaining approval from the MOEA, will be eligible for subsidies of up to 50% of total R&D expenditures if they: (1) have technologies that are not yet mature in Taiwan or overseas, and could create strategic products, services, or industries over the course of future industrial development; (2) have potential to help Taiwan produce leading technologies or significantly enhance the competitiveness and increase the added value of important industries; or (3) engage in key and common technology R&D, vertical or horizontal technology integration, and can create an industrial value chain.

2. Integrated R&D Program

Companies, once approved by the MOEA, will be eligible for subsidies of no less than 40% but no more than 50% of total project funding if they: (1) engage in key and common technology R&D, vertical or horizontal technology integration, and can create an industrial value chain; (2) establish industry standards, protocols, or platforms; or (3) establish applications, services, and innovative business and marketing models with technological content, and increase industry's added value.

3. Taiwan Industry Innovation Platform Program

The Industrial Development Bureau, MOEA, and Ministry of Science and Technology have jointly implemented the "Taiwan Industry Innovation Platform Program" to guide industries to develop towards



greater value, and to encourage companies to enter high-end product application markets to increase the industry's overall added value. The program provides companies with R&D teams in Taiwan with 40-50% of funding required for theme-based R&D projects, and up to 40% of funding for R&D projects proposed by companies.

In order for industry to be capable of information security management over the long term and to be equipped with industrial information security readiness evaluation and reporting systems, the Industrial Development Bureau built the smart manufacturing information security demonstration site that helps promote investments in information security. Meanwhile, the "Smart Manufacturing Information Security Reinforcement Promotion Themed Subsidy Program" has been set up under the "Taiwan Industry Innovation Platform Program" to encourage smart manufacturers in Taiwan that have machine-to-machine networks to incorporate them into their production lines in order to improve cybersecurity products and solutions at their smart manufacturing sites.

3 | Measures taken by local governments |

To support the developments of startup companies, local governments have also provided resources such as "investing in or sponsoring" review or contest mechanisms, setting up the "incubation or acceleration programs," training professionals, and providing free or fairly priced office space, to help venture companies achieve strong growth. This also applies to the information security software industry.



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