



Most Reliable and Innovative Partner in Asia

https://investtaiwan.nat.gov.tw

### **Presentation Outline**





Investment Opportunities



**Incentives** 



# Why Taiwan

- Best Trusted and Resilient Supply Chain Partner
- Well-developed Industrial Clusters
- Competitive R&D Capacities
- Talented Human Resources
- Secure IP Protection
- Friendly Living Environment

Best Destination for Investment #4 in the world

#4 in the world (#2 in Asia)

2021 Business Environment Risk Intelligence (BERI) Report

**World Competitiveness** 

#8 in the world (#3 in Asia)

IMD World Competitiveness ranking 2021

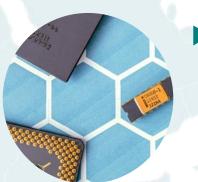


### Why Taiwan: Best Trusted and Resilient Supply Chain Partner



### New Opportunities

- Supply chain adjustment of multinational enterprises
- Searching for trusted and resilient supply chain partners



### **▶** New Technologies

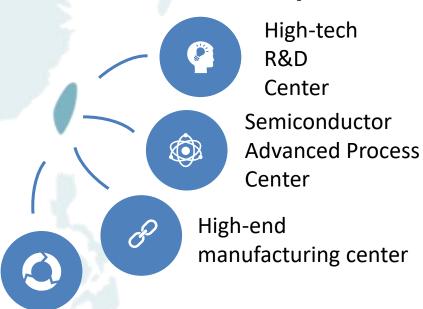
- Emerging semiconductor: Market scale reaches US\$600 billion in 2025
- 5G applications: Market scale reaches US\$1.33 trillion in 2025
- Al business: Market scale reaches US\$11 trillion in 2025

### New Demand

- Epidemic prevention related products and systems
- Rise of new working styles
- Contactless economy

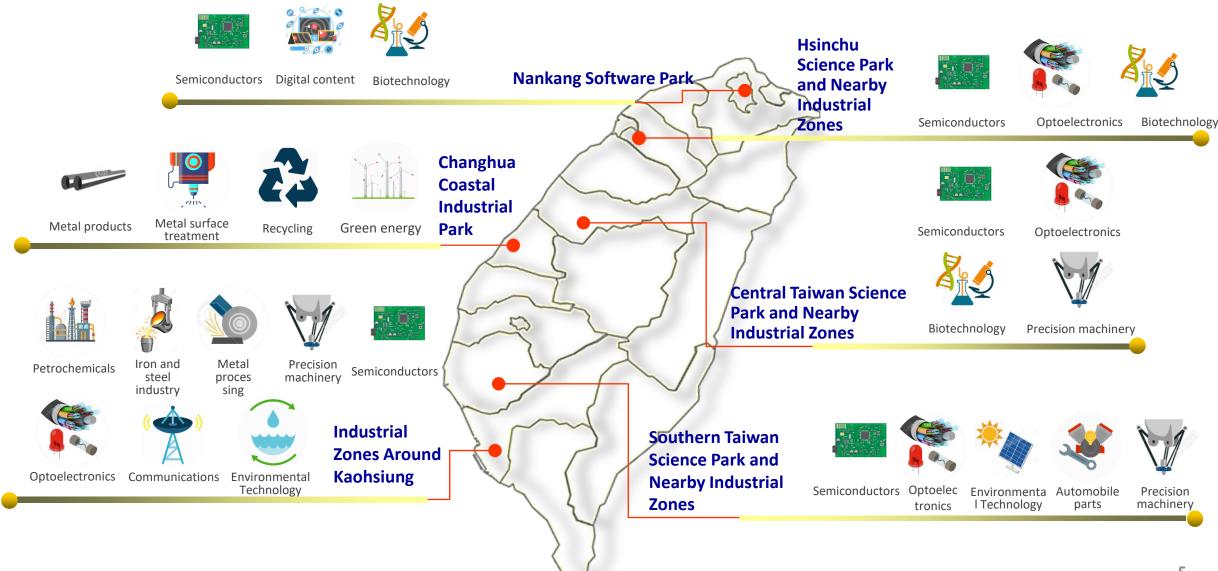
# Taiwan's New Value · New Position

### **Innovation, Trust, Safety**



Green Energy Development Center

### Why Taiwan - Well-developed industrial clusters



### Why Taiwan: Abundant R&D Capacities





**Biotechnology Center** 



財團法人 紡織產業綜合研究所 Taiwan Textile Research Institute

**Textile Research Institute** 



財團法人資訊工業策進會 INSTITUTE FOR INFORMATION INDUSTRY

Institute for Information Industry





金屬工業研究發展中心 METAL INDUSTRIES RESEARCH & DEVELOPMENT CENTRE

Metal Industries Research and Development Center





### 工業技術研究院

Industrial Technology Research Institute

Industrial Technology
Research Institute





車輛研究測試中心

Automotive Research & Testing Center





財團法人塑膠工業技術發展中心 PLASTICS INDUSTRY DEVELOPMENT CENTER







**China Productivity Center** 



### **Why Taiwan - Talented Human Resources**



### "IMD Talent Ranking 2021"

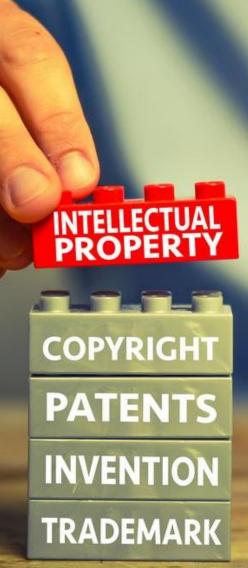
- Taiwan ranked #16 in the world and #3 in Asia
- Readiness ranked #9 in the world
- Investment & Development ranked #20 in the world
- Appeal ranked #22 in the world

### **Education level**

- 53.08% bachelor's degrees or higher of total labor force in 2020
- 8.82% master's degrees or higher of total labor force in 2020

### Why Taiwan - Secure IP Protection





Comprehensive regulatory system: The "Commercial Case Adjudication Act" and "Intellectual Property and Commercial Court Organization Act" became effective on July 1, 2021. Professional judges and investigators are appointed to increase the efficiency in processing commercial cases.

**Establishment of Patent Prosecution Highway (PPH) with multiple countries**: Taiwan has signed PPH agreements with countries including the United States, Japan, South Korea, Poland, and Spain to speed up the review of patent cases.

**Establishment of the Intellectual Property and Commercial Court** 

**Establishment of the Intellectual Property Rights Police Team** 

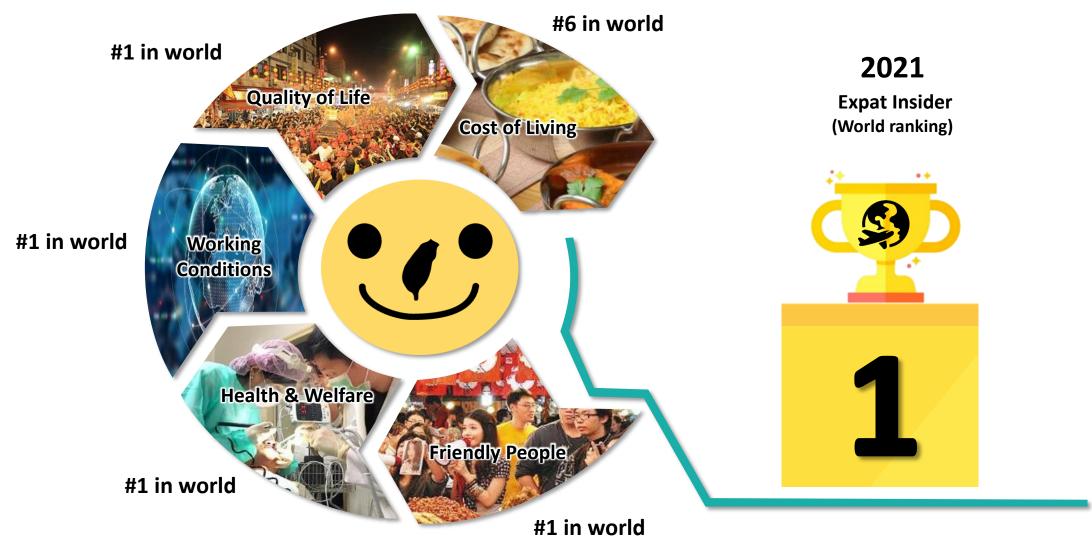
**Economic freedom recognized by the international community:** 

The aforementioned measures are recognized by the international community. According to the "2021 Index of Economic Freedom" published by the U.S. Heritage Foundation, Taiwan ranked 6th among the 184 economies around the world.



### Why Taiwan – Friendly Living Environment

#1 in Asia, #1 in the world (Expat Insider 2021)



# **Investment Opportunities**

Six Core Strategic Industries 5 + 2 Innovative Industries







Semiconductors

Asia Silicon Valley

**Vext-Generation** Vehicle



**Smart Machinery** 



Biomedicine



**Green Energy** Technology



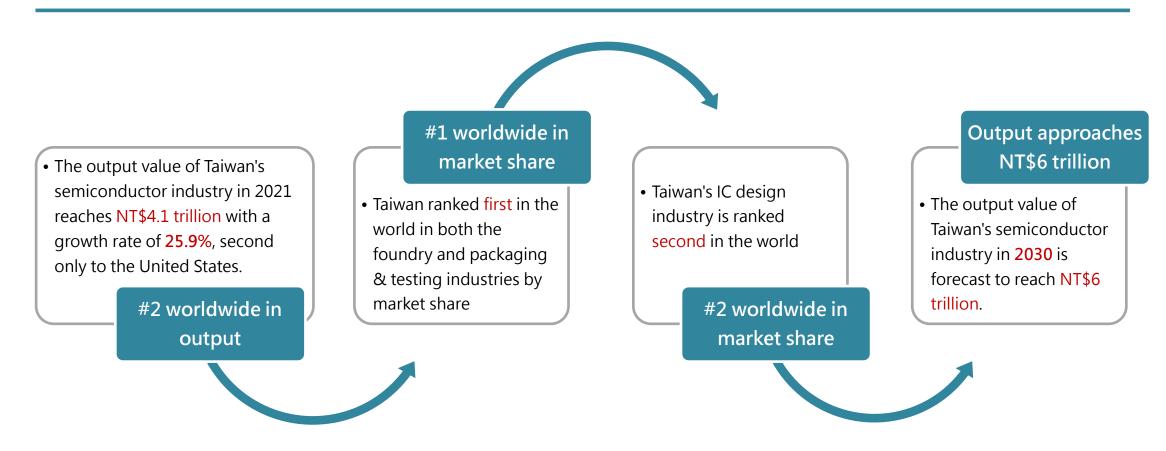
**National Defense Circular Economy** Industry



Agricultural Modernization

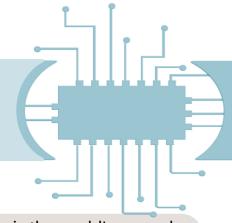
# Investment Opportunities - Semiconductors | Capabilities and Vision

Taiwan's semiconductor industry has become an important partner and pillar of support in global high-tech innovation and R&D



# Investment Opportunities - Semiconductors | Business Opportunities

Taiwan's advantages in semiconductor clusters and clustering effects power immense market demand of related supply chains



2020

- Global sales of semiconductor manufacturing equipment reached a record high of US\$68.9 billion and Taiwan is the world's second largest market in terms of demand for equipment.
- Global sales of semiconductor materials grew by 4.9% year on year to a record high of US\$55.3 billion. The sales value in Taiwan's market increased by 8.2% to US\$12.38 billion, making it the world's largest market for semiconductor materials for 11 consecutive years.

2021

- Global sales of semiconductor manufacturing equipment grew by 34% from 2020 to US\$65.3 billion, and Taiwan's semiconductor equipment investment reached NT\$161.8 billion, making it the second largest market in the world.
- Asia dominates global investment in foundry and memory output capacity and Taiwan leads the world in foundry OEM output capacity.

2024

• From 2021 to 2024, the compound annual growth rate (CAGR) will reach 10.5% for Taiwan's foundries, 7.9% for IC design, 7.5% for memory, and 7.2% for IC packaging.

# Investment Opportunities - Semiconductors | Successful Cases



- Micron Technology, Inc., a major global memory manufacturer, expanded the production line at its Taichung plant in 2019 and added cleanroom space and technology upgrades. The new A3 Plant was inaugurated in June 2021.
- SUSS MicroTec, a major semiconductor equipment manufacturer based in Germany, invested NT\$500 million to set up operations in Hsinchu Science Park in August 2019. It inaugurated its manufacturing center in Hsinchu Science Park (its first plant in Asia) in December 2020 for the manufacture of photoresist coaters/developers, scanners, photomask process equipment, and other key high-precision lithographic process equipment.





- Applied Materials, the world's largest producer of semiconductor and display equipment, has invested in its Global Technology Learning Center (GTLC), Display Equipment Manufacturing Center and R&D Laboratory, 8" Wafer and Semiconductor Equipment Manufacturing Center, and Asia Continental Distribution Center. It also invested more than NT\$3 billion to create the world's first manufacturing and R&D center for display equipment which was inaugurated in 2019.
- Tokuyama, a major supplier of semiconductor chemical materials from Japan, has established plants in Hsinchu and Yunlin, and it announced the joint venture "Formosa Tokuyama Advanced Chemicals" with FPG in September 2020. Both parties invest NT\$1 billion in with equal shareholding for the construction of the electronic-grade isopropyl alcohol (IPA) plant in Kaohsiung City to pursue business opportunities in 5nm and 3nm advanced semiconductor fabrication.



### **Investment Opportunities - 5G/AloT | Asia Silicon Valley 2.0**



### **Targets**

companies **Development of** international system integrators

Global share of IoT output value in 2025

**Export AloT** solutions

40 projects 200 c

**Facilitate diverse** exit of startups

**Facilitate success of** startup enterprises

# Investment Opportunities - 5G/AloT | IoT Business Opportunities



**Smart Transportation** 

Smart Street Lighting & Smart Roadside Parking Solutions



**Smart Agriculture** 

**UAV Monitoring & IoT Agricultural Technology** 



**Smart Home** 

Smart Modification of Old Buildings & Public Housing Innovation



**Smart Business** 

Smart Retail & Smart Business Community



**Smart Manufacturing** 

Develop Industry 4.0
National Team to
achieve Technological
Independence



**Smart Logistics** 

Intelligent Cold Chain Management



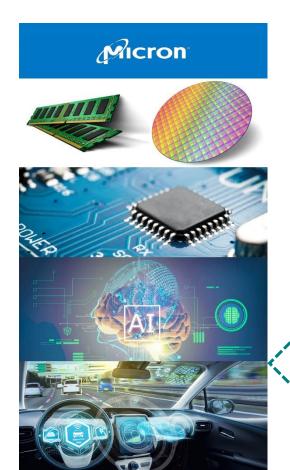
**Smart Medicine** 

Smart Healthcare Platform & Smart Medical Solutions



Smart Grid & Environmental Monitoring

# Investment Opportunities - 5G/AloT | Successful Cases



 Qualcomm established Manufacturing Engineering, Testing Center and Innovation Center in Taiwan in response to the advent of the 5G and AI era, based on Taiwan's sound R&D capacities and ICT ecosystem.



• Tech giant **Google** has developed the largest engineering team in Asia in Taiwan. It inaugurated the brand-new office area in January 2020 and announced the establishment of its third data center in Douliu, Yunlin in September of the same year. It also used the "Intelligent Taiwan Program" to recruit digital talents and cultivate YouTube and developer communities.

### **Investment Opportunities - 5G/AloT | Asia New Bay Area**

- Government launched the "Asia New Bay Area 5G AloT Innovation Park" in the second half of 2020. Kaohsiung City Government and Ministries of the central government consolidated their resources to invest NT\$11 billion in 5 years for the development of the industrial park to create a talent center, startup hub, and 5G AloT smart facilities.
- In November 2020, the Kaohsiung City Government, ministries of the central government, international firms such as Microsoft Taiwan, Cisco Taiwan, and Amazon's cloud service provider AWS, and domestic telecommunications operators including Chunghwa Telecom and Far EasTone jointly formed the "Asia New Bay Area 5G AloT International Alliance" as they set up operations in the Asia New Bay Area in Kaohsiung.
- In December 2021, the "Asia New Bay Area 5G AloT Innovation Park" set up by the Ministry of Economic Affairs has inaugurated. At the same time, National Cheng Kung University also entered the "Smart Semiconductor and Sustainable Manufacturing College" set up in the Kaohsiung Software Park. These two projects will drive more business opportunities and added value to startups in Asia New Bay Area.



# **Investment Opportunities - Next-Generation Vehicle | Capacity and Vision**





In addition to high domestic sales, Taiwan-made auto components are also exported in large quantity to markets in North America and Europe. Taiwan is also a significant player in the aftermarket (AM) and OEM markets.

Lithium batteries, drive motors, reduction gears, power storage systems, power control modules, power control systems, and telematics produced in Taiwan have gained a foothold in the international auto makers' EV supply chain.

7

Taiwan aims to achieve full electrification of buses by 2030. Through the "Smart Electric Bus Project", domestic electric bus and key components manufacturers are encouraged to invest in upgrading and development to enter the supply chain of major domestic and foreign manufacturers.

# **Investment Opportunities - Next-Generation Vehicle | Business Opportunities**



Despite the epidemic in 2020, global sales still grew at an annual growth rate of more than 40% to 3.1 million. The ratio of overall automobile sales increased from 2.5% in 2019 to 4.4%.

In 2025, global electric car total sales will reach close to 15 million. And, the total sales will reach 25 million in 2030 which will account for 10% and 15% of all road vehicle sales, respectively.



# Innovation and Cooperation

Taiwan has a comprehensive supply chain and advanced technologies for vehicles, machinery, and materials. It has advantages in the technologies of the electronics industry (e.g., automotive communication, safety and driving assistance system, system). It also offers flexibility for producing small batches of diverse products and ability to develop innovative cross-industry cooperation models to meet the needs of the automotive industry.



# Secure Supply Chain

International auto makers can make good use of the existing foundation that's been laid by Taiwanese ICT firms and makers of auto components. They can also set up a Taiwan-centered regional production network that serves as a backup production base or supply source for important components to disperse supply chain risks.

# Investment Opportunities - Next-Generation Vehicle | Successful Cases

#### **MIH Electric Vehicle Alliance**

More than 1,000 companies from 43 countries/regions around the world (encompassing hardware, software, and services) have joined the MIH open platform launched by Foxconn in October 2020 to accelerate the development of electric vehicles.

### **NVIDIA, US maker of graphics chips**

NVIDIA signed an MOU in 2019 to engage in cooperation with the National Applied Research Laboratories (NARLabs), which is subordinate to Taiwan's Ministry of Science and Technology. NVIDIA will take part in efforts to develop Taiwan's autonomous vehicle industry, and will cooperate with Taiwan CAR Lab.



### TÜV, Germany

TÜV established a brand-new IoT laboratory in August 2019 and introduced the latest equipment to enhance the development of IoV and related inspection services in Taiwan.

#### Nidec

Nidec issued a joint announcement with Foxconn and Foxtron Vehicle Technologies in July 2021 to establish a joint venture in Taiwan for the R&D, production, and sales of motor systems and various automotive motor products.

# Investment Opportunities - Smart Machinery | Capacity and Vision





#### **Machine Tools & Parts**

World's **7th** largest manufacturing country
World's **5th** largest export country



#### **Hand Tool**

World's 3th largest export country



### **Aerospace Industry**

Military-level manufacturers



### **Wood-working Machine**

World's 4th largest export country



### **Optoelectronic Panel**

World's 2nd largest

**Intelligentization of Industrial Machinery** 



### **Industrialization of Smart Machinery**

#### **Resources Platform**

- R&D clusters
- Nurture cross-sector talent
- International collaboration & M&A



#### **Fill in Visionary Industrial Needs**

- Aeronautics & Astronautics
- Smart robots
- Precision medical devices processing
- ICT equipment



#### **Global Expansion**

To drive exports to overseas markets



### Investment Opportunities - Smart Machinery | Taiwan Supply Chain



Bearing

TPI, Crocodile, HIWIN

#### **Machine Tools**

Evermore, Chumpower Machinery, Nine9, Acrow

**Tool Changing System** deta, Chen Sound, Gifu

**Rotary Table** 

**GSA, PARKSON, TANSHING** 

**Telescopic Guard** 

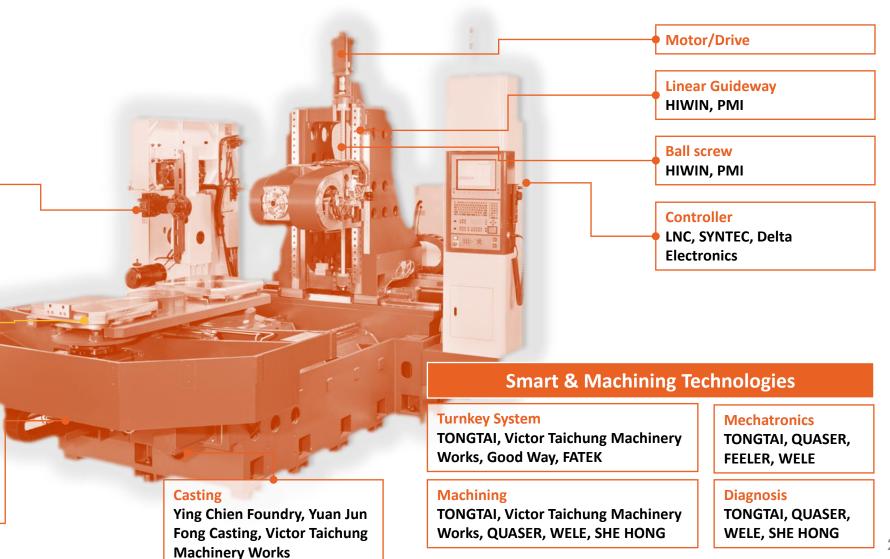
**Keyarrow, DEFENDER** 

**Sheet Metal** 

Keyarrow

**Oil Pressure Unit** 

Chen Ying, HINAKA



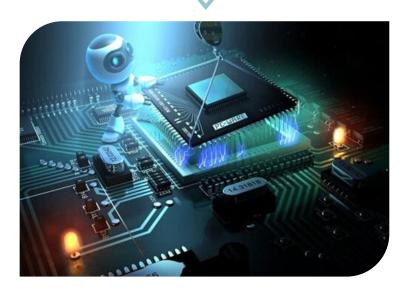
# Investment Opportunities - Smart Machinery | Business Opportunities

# Consolidation of ICT Technology Development with Industry 4.0 Advanced Technologies

- Digital Simulation & Analysis
- Product Lifecycle Management
- Big Data Analysis
- Machine Learning
- Artificial Intelligence (AI)

# Integration of Software and Hardware Capabilities to Realize Smart Industries

- Smart Sensor
- Industrial & Service Robot
- Semiconductor FEOL & Advanced Packaging
- 3D printing
- Aerospace Machine Tool & Advanced Controller



# Develop Customized Total Solutions

- Integrated Smart Factory Solution
- Smart Manufacturing System by Industry



### Investment Opportunities - Smart Machinery | **Successful Cases**





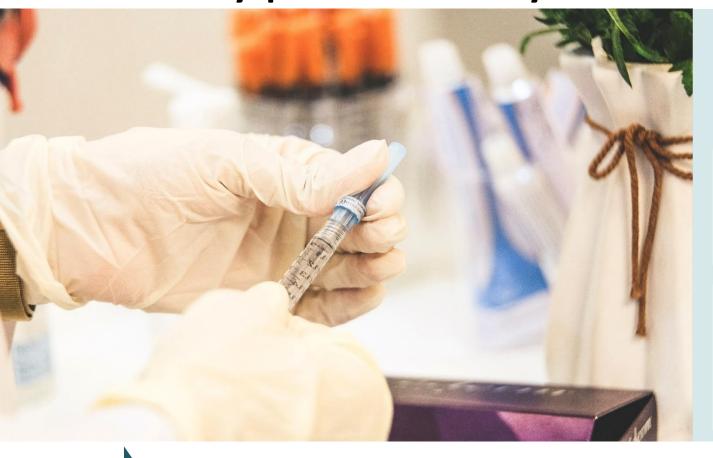
### **YASKAWA**

- Yaskawa Electric, based in Japan, is the fourth largest industrial robot manufacturer in the world. In 2018, Yaskawa Electric invested NT\$200 million for the construction of a factory in the Taichung Science Park of Central Taiwan Science Park as a robotics R&D and exhibition center. It will help local precision machinery manufacturers transition to smart manufacturing and usher in the era of AI artificial intelligence.
- The factory has inaugurated in June 2021.

- Rockwell Automation, a company based in the United States, launched a large-scale investment program in Taiwan in 2018. It selected Taichung for the construction of the "Smart Manufacturing Taiwan Demonstration Site" and launched the "Automation Industry Talent Cultivation Program".
- In 2020, it helped a Taiwanese pharmaceutical manufacturer adopt application performance management (APM) to quickly set up smart systems. The project has become a benchmark case study for its innovative applications in the biotechnology and pharmaceuticals industry in Taiwan.
- In response to smart manufacturing and low-carbon trends, Rockwell Automation will actively develop predictive maintenance systems for semiconductors equipment, Internet of Machines, and energy conservation equipment for heavy industries in Taiwan.



# Investment Opportunities - Biotechnology & Pharmaceutical Industry | Hub of Asia by 2025



### **Integrate Innovation Clusters**

 Drug development accelerated and industry output increased by integrating local unique medical devices and clusters

### **Establish Comprehensive Ecosystem**

 Capabilities enhanced by talent, capital, topic selection, intellectual property, laws and regulations, and resources

### **Promote Specialized Key Industries**

- Precision medicine
- World-class specialty clinic clusters
- · Healthy lifestyle industry

2025 Targets us\$ 30 billion output

**20** 

new drugs

80

niche devices sold overseas markets

10 essful bran

Successful brand names

# Investment Opportunities - Biotechnology & Pharmaceutical Industry | Business Opportunities



### **Prescription Drugs**

- Driven by the growing aging population worldwide and new therapeutic approaches, the global drug market is expected to reach **US\$1.5 trillion** by 2023.
- Relaxation of regulations in 2021:
  - 1) The latest "Regulations Governing the Administration or Use of Specific Medical Technology-based Testing or Laboratory Medical Instruments" (hereinafter referred to as the Regulations) amended and promulgated by the Ministry of Health and Welfare included regulations on laboratory developed tests (LDTs) and supports cell treatment.
  - 2) The Executive Yuan passed the draft of the "Act for the Development of Biotech and New Pharmaceuticals Industry" which included contract development and manufacturing organization (CDMO) in the scope of incentives.

### **Medical Equipment**

- The global medical equipment market may reach US\$475.3 billion by 2022, with Americas, Western Europe, and Asia Pacific being the top three major markets.
- Taiwan's ICT industry has advantages such as a comprehensive supply chain and industrial clusters. Compal and Wistron have cooperated with the medicine industry and invested in the field of smart medicine.



# Investment Opportunities - Biotechnology & Pharmaceutical Industry | Successful Cases

#### Roche

- Roche has accumulated over 50 years of experience in Taiwan, and it has established its first demonstration site for intelligent healthcare and clinical decision making in Asia Pacific in collaboration with Changhua Christian Hospital in August 2020.
- In March 2021, Roche jointly launched a platform for the use of Taiwanese biobanks for the development of precision treatments for cancers in collaboration with the Ministry of Health and Welfare and the National Health Research Institutes.
- In June 2021, Genconn Biotech launched the Roche home-use SARS-CoV-2 Antigen Rapid Test Kit, which was one of the first products approved after Taiwan began permitting rapid tests at home.

#### **MSD**

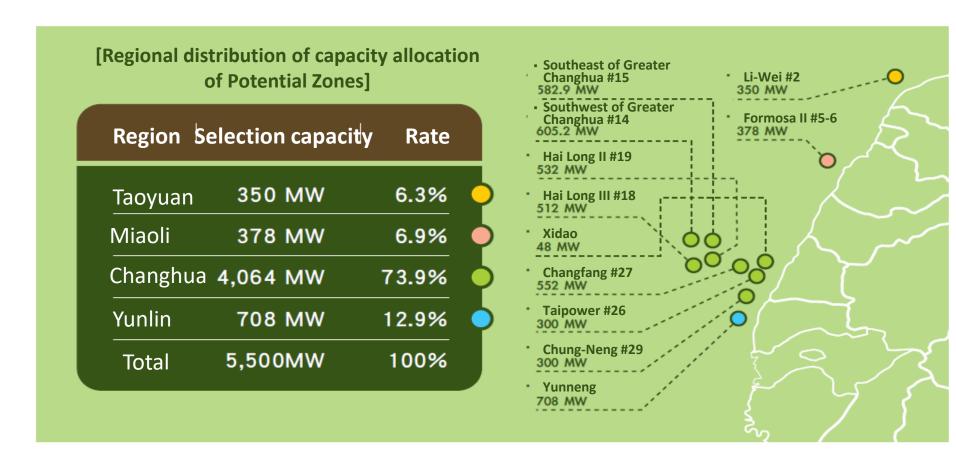
- MSD set up its largest clinical research team in Taiwan and recognized Taiwan's clinical trial environment including high-quality clinical trial operations, professional and smooth procedures, and the potential for becoming the center of innovative medicine in Asia Pacific.
- In July 2021, MSD collaborated with National Taiwan University Hospital and Taoyuan Hospital in the phase 3 clinical trial of Molnupiravir, an oral medication for COVID-19. It has started the enrollment and execution of the trial.



### Investment Opportunities - Green Energy | Development Strategy

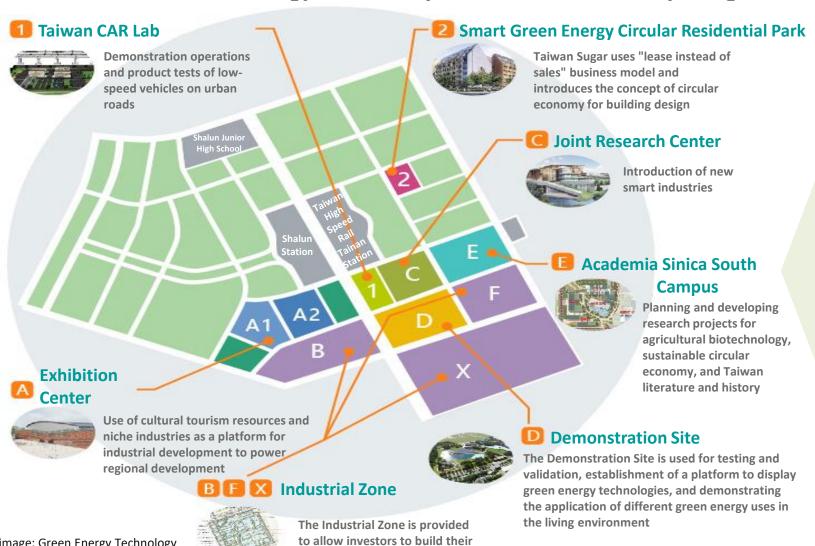
# **System integration Energy generation Power storage Energy conservation**

### Overview of wind power siting in Taiwan



# Investment Opportunities - Green Energy | Shalun Smart Green Energy Science City

The "Shalun Smart Green Energy Science City" of Tainan was officially inaugurated at the end of 2020.



own R&D buildings

- It aims to create an innovative green energy industry ecosystem
- It includes the Academia Sinica South Campus, Joint Research Center, Green Energy Technology Pilot Program Site, Research Park, and Exhibition Center
- The "Green Energy Technology Pilot Program Site" will be used to create a green energy technology development and demonstration application environment for domestic and foreign green energy R&D technologies and industrial tests, certification, and matchmaking, which will increase the benefits of the clustering in the green energy industrial chain.

# Investment Opportunities - Green Energy | Business Opportunities

### **Photovoltaic opportunities = NT\$1.2 trillion**

- 20GW of solar equipment will be setup by 2025
- Includes investment in photovoltaic module plants and large (>10MW) photovoltaic system engineering technologies

### Wind power opportunities = NT\$1.5 trillion

- 6.5 GW of wind power equipment will be setup by 2025
- 1.5GW of development capacity from 2026 to 2035
- They include offshore wind power towers, underwater foundations, land transportation, marine work vessels, marine engineering, wind turbine components, power facilities, and third-party certification centers

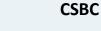
### **Successful Projects**







**Northland Power, Canada** 









**Siemens Gamesa Renewable Energy** 

Hai Long Offshore Wind Farm Project

- Siemens Gamesa Renewable Energy began the construction of a nacelle assembly plant in the domestic offshore wind power production area in the Port of Taichung in 2019 and became the first of the resident businesses to open.
- It officially began production in August 2021 and successfully assembled the first nacelle produced in Taiwan. It also became the only nacelle assembly plant for offshore wind turbines outside Europe.

### **Investment Opportunities - Circular Economy | Opportunities**

**Exploration** 

**Manufacturing** 

**Distribution** 

Consumption

Disposal

### **High-Value & New Green Energy Materials**

US\$3.3 billion investment

US\$10 billion output

US\$40
billion
related output

- 35 high-value new materials
- 20 green new materials

# 100 million YouBike trips



### Recycle

**6,000** kg/month

rare-earth element metals disposed

but little has been processed & collected

- Taiwan tops the world in recycling industrial and general waste
- Recycled PET bottles, coffee grounds, etc. can become fabric for cloths





# Investment Opportunities - Circular Economy | Successful Cases



- In response to the rapid increase in market demand, Swedish air filter producer Camfil officially began operations in its new plant in Tainan in March 2021.
- It will support the continuous growth of the semiconductor, biotechnology, and turbocharger machinery industries by reducing transportation times with local production.

# **VEOLIA**

- Veolia Environment, a French company and the world's largest environmental and public utility services company, signed a contract with SCI Pharmtech, a producer of active pharmaceutical ingredients in Taiwan, in August 2020. They will work together to expand the business opportunities in the circular economy through the purification and reuse of chemical solvents.
- The two companies will invest approximately NT\$300 million to establish a joint venture in Taiwan. Trial operations are set to begin in 2 years.

### **⊖** TANAKA

Tanaka Precious Metals, a company based in Japan with the largest global market share in fuel cell catalysts, has accumulated
more than 35 years of experience in Taiwan. It focuses on the development of rare metal refining and precision analysis
technologies, and will pursue development in six major fields including automobile, semiconductors, consumer electronics, nextgeneration energy, healthcare, and environmental protection.

### **Investment Incentives**



**Tax Incentives** 



**R&D Subsidies** 



**Special Zones Incentives** 



-

**Incentives for Global Talent** 

### **Investment Incentives - Tax Incentives**

R&D tax deductible

Up to 15%

Making
Substantive Investment
by Undistributed Earnings

Free Surtax for undistributed earnings

Importing
Machinery LocalManufacturers
Cannot Produce

Free Import

Duty

5G/Smart
Machinery/Informatio
n Goods & Services
Investment tax
deductible

Up to 5%

Royalty payments to patents, copyrights

Income Tax
Exempt

**Investment Incentives - R&D Subsidies** 

### **Global R&D Innovation Partner Program**

Subsides are available up to 50% of total spending by foreign enterprises on the establishment of R&D centers in Taiwan.

# Industrial Technology Foresight Research Program

Subsidies are up to 40% - 50% of total development funding for the new potential, technologies.



### **Investment Incentives - Special Zones Incentives**

General Tax
Incentives

Exemption from import duty, commodity tax, and business tax on imported

Raw materials/fuel/materials/semi-processed goods/machinery

Zero business tax on

Goods and services shipped abroad

Raw materials, fuel, materials, semi-processed goods, and machinery procured from a tax zone



#### **Free Trade Zones**

- For enterprises who engaged in only preparatory or auxiliary activities in Taiwan, and handling with procurement, import, storage or transport in FTZ area, the sales income shall be 100% exempt from Profit-seeking Enterprise Income Tax.
- Exempt from
  - Alcohol tax
  - ◆ Tobacco health and welfare surcharge
  - ◆ Trade promotion service fee, and harbor service fee



#### Science Parks

**R&D** Subsidies

- ◆ Up to NT\$10 million
- ◆ 50% of total project cost

-

### **Investment Incentives - Incentives for Global Talent**



### Provides retirement, health insurance and tax benefits

- Professionals tax cut for 3 years
- Lifting restrictions on National Health Insurance coverage
- · Strengthening retirement security



# Relaxed residency regulations for parents, spouses and children

- Issuance of personal work permits in Taiwan for the grown children
- Liberalizing permanent residency applications for spouses and children
- Extend visiting visa



# Relaxed work, visa and residency regulations

- Four-in-one "Employment Gold Card"
- Job-seeking visas
- Work permit for foreign freelance artists



## Tax Deferral for the Technology Stocks & Employee Stock Bonus

- Exempted from individual income tax liability for the current year
- Paying taxes based on the price of stocks as acquired or transferred, whichever is lower



### **Investment Services - Single Contact and Customized Services**





#### **One-stop services**

Comprehensive one-stop services and investment assistance

#### Rapid response within 24 hours

Integrated online and offline response within 24 hours





#### Search assistance for land

Assistance for land acquisition and improved referral services

### Removing barriers by inter-departmental meetings

Removing investment barriers on different levels and across different government agencies





#### **Pre-investment Exploration**

- Focusing on key industries and countries
- Promoting Taiwan's investment opportunities
- Providing customized investment information



#### **Investment and Establishment**

- Visiting the companies with investment potential
- Removing investment barriers by interdepartmental meetings



#### **Investment Operations**

- Interviewing on after-investment operation by company visits
- Removing investment barriers
- Promoting reinvestment or new investment projects in Taiwan