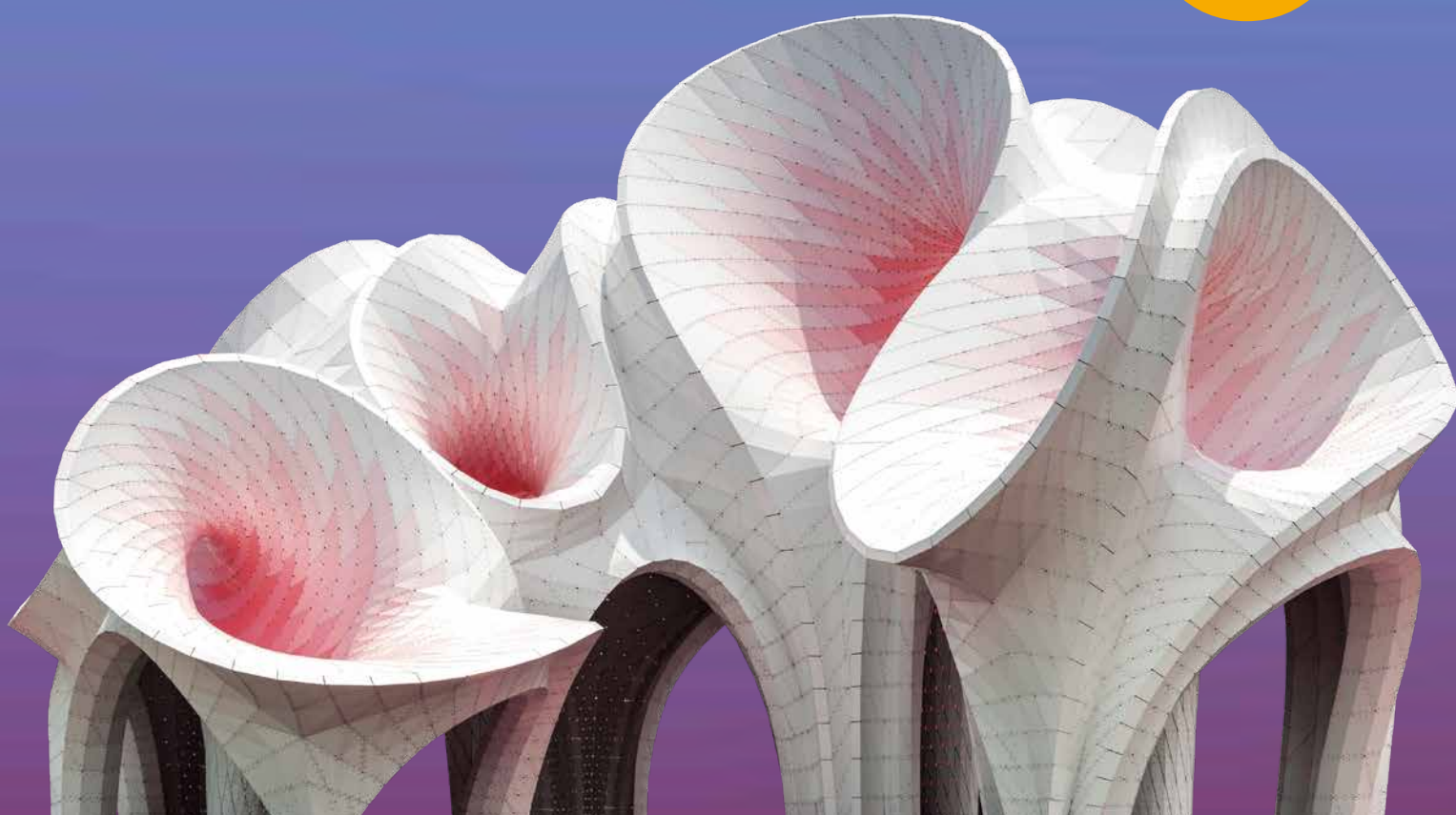




# 2022 ANNUAL REPORTS

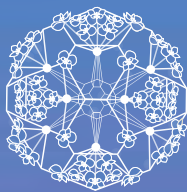
Central Taiwan Science Park





### Great Leap of AI-I

The artist Marc Fornes finds inspiration in nature, and develops ideas based on the internal order of mathematics and nature. This artwork with geometric and mechanical designs is born by using formulas and parameters in simulations. As well as selecting modern technology to reinterpret the beauty of integrating experience and knowledge of flowers. The meaning of gladiolus is to rise, which corresponds to the development of CTSP with the order of technology and makes the artwork a landmark.



### Great Leap of AI-II

Houli District produces dancing doll orchid, which has the meaning of leaping. The artist uses the image structure of a dancing doll orchid as an analogy for AI. The artwork is like a colorful bubble in the shape of a hexagonal prism, radiating from the core in 360 degrees, encompassing dots, lines, and surfaces, showing that Taichung Houli is an irreplaceable place in the flower tourism industry. The meaning of the artwork corresponds to the development of CTSP and uses the concept of mimicry, cell division module, and nerve conduction structure to represent the image of AI.





*Technology*

*The path to a wonderful life in the future*









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## A Message from the Director-General

# Trillion dollar CTSP, May the Success be with Taiwan

Despite the impact of the pandemic, Russia-Ukraine War, and global inflation in 2022, the efforts of tenant companies under government policy allowed the integrated circuit, machinery, and biotechnology industries to maintain their strong momentum in 2021. This allowed CTSP's annual revenue to hit a new record high, surpassing NT\$1 trillion for the second consecutive year.

Industry-academia collaboration, including the Plan to Accelerate Innovation of Biomedical Industry in Central Taiwan, CTSP Precision Health Industry Cross-Domain Promotion Program, Plan to Accelerate Industrial Intelligent Upgrading and Digital Optimization in Central Taiwan, and Emerging Technology Application Program, drove the investment of over NT\$113 million in R&D and continued to accumulate innovative smart technology applications. The applications of 20 high-tech companies were approved during the year, and the total investment amount reached NT\$166.2 billion.

With regard to efforts towards achieving net zero emissions and circular economy, the first zero waste recycling center is being built in CTSP to purify and reuse industrial waste. After the center begins operations at the end of 2023, it will reduce industrial waste by 140,000 tons per year, create a circular economy model of "from cradle to cradle," and achieve a 96.5% waste reuse rate, which will reduce carbon emissions by approximately 52,000 tons per year, which is equivalent to approximately 134 times the carbon absorption of Daan Park. Additionally, the tenant companies have achieved a process water recycling rate of over 90%.

In terms of ESG awards, after CTSP received the Taiwan Corporate Sustainability Awards (TCSA) Platinum Award in 2020, CTSP received the Silver Award in Singapore's Asia Sustainability Reporting Awards in 2022, and further won the Gold Award in the 2022 Asia-Pacific Sustainability Action Awards with the theme "Sustainable Use, Transforming Wastewater Into Blue Gold."

The Executive Yuan approved the Taichung Park Phase Two Expansion Preparation Project in January 2022 in response to the development needs of high-tech industries, and will expand Taichung Park by 89 hectares to the west. CTSP's team showed strong ability in carrying out procedures for environmental impact assessment, rezoning, soil and water conservation, and land appraisal. The land is expected to become available for companies to build plants in Q4 2023, and it will help Taiwan's semiconductor industry maintain its leadership position.

Even though CTSP achieved excellent performance in 2022, we will not let our guard down because many important tasks are still ongoing. CTSP will continue to pursue excellence in 2023, building upon its existing foundation and directing its effort towards "Exquisite and Diverse, High-Quality Lifestyles, Energy Saving Sustainability."

Director-General, CTSP Bureau

Maw-Shin Hsu

2023.05.31

A Message from the  
Director-General

Continue to hit  
record high

Competitive technological  
capabilities

Optimize competencies  
for new situations

Endless growth  
for prosperity

Milestones



# Continue to hit record high

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## Trillion dollar CTSP

The total revenue of all industries in Central Taiwan Science Park (CTSP) surpassed NT\$1 trillion in 2022 after achieving the same feat in 2021. Total revenue reached NT\$1.169811 trillion in 2022, which was a 13% increase compared to NT\$1.035232 trillion in 2021, setting a new record high! There has been a strong demand for the semiconductor industry chain due to the continuous expansion of emerging technology applications, such as automotive electronics and high-performance computing. In addition, the increase in prices for foundry and equipment has contributed to CTSP's revenue growth.

In 2022, the integrated circuit industry made the largest contribution to revenue, generating approximately NT\$993.086 billion, which accounts for 84.89% of the total revenue. The optoelectronics industry followed with approximately NT\$123.312 billion (10.54%), while the precision machinery industry contributed approximately NT\$33.017 billion (2.82%) other industries contributed approximately NT\$20.396 billion.



Chin Kuan-Wen\_Land Yacht, Special Award, 2022 Discover CTSP Photography Contest



## Statistics of 2022 Revenues by Industry

Unit: NT\$ billion

**↑ 23.39%**

### Integrated Circuit

● 84.89% | 993.086 billion

● 77.74% | 804.829 billion

**↓ 33.04%**

### Optoelectronics

● 10.54% | 123.312 billion

● 17.79% | 184.172 billion

**↑ 11.14%**

### Precision Machinery

● 2.82% | 33.017 billion

● 2.87% | 29.707 billion

**↑ 17.56%**

### Biotechnology

● 0.80% | 9.359 billion

● 0.77% | 7.961 billion

**↑ 39.11%**

### Computer & Peripherals

● 0.59% | 6.902 billion

● 0.48% | 4.962 billion

**↑ 12.75%**

### Others

● 0.30% | 3.517 billion

● 0.30% | 3.120 billion

**↑ 27.96%**

### Communications

● 0.05% | 0.617 billion

● 0.05% | 0.482 billion

### Total revenue

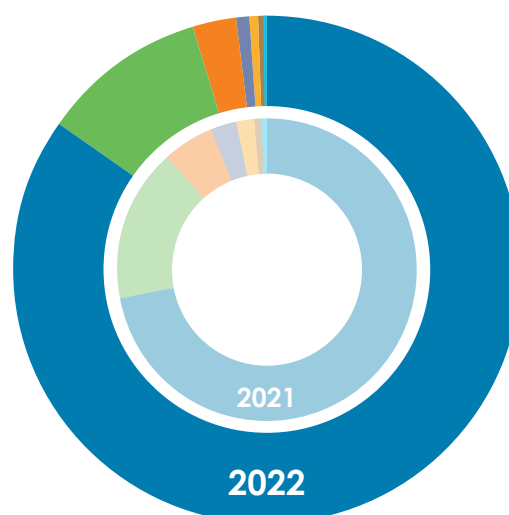
2021

1,035.232

2022

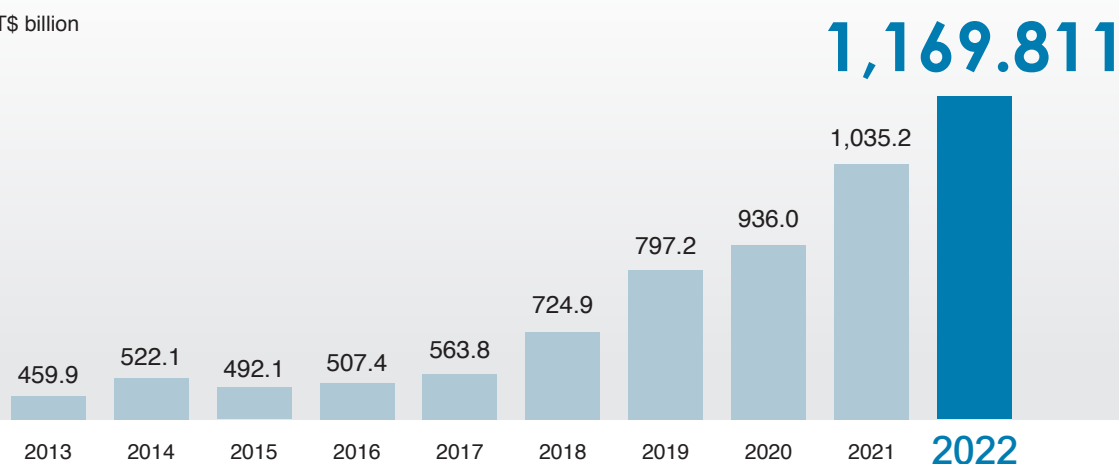
**1,169.811**

**13.00%**



## CTSP Revenues in Recent Years

Unit: NT\$ billion





Compared to last year, CTSP's total imports and exports in 2022 increased by 15.51% and reached NT\$918.033 billion. However, exports dropped by 22.17% to a total of NT\$461 billion, while imports increased by 125.78% to a total of NT\$457.034 billion. In 2022, exports exceeded imports by NT\$3.966 billion.

The decrease in exports was primarily caused by downstream companies reducing their production to digest their inventory, resulting in a decline in purchase orders and a drop in panel prices. The growth in imports mainly benefited from plant expansions by tenant companies, as well as an increase in foundry and memory purchase orders. This led to an increase in the importation of precision instruments, equipment and raw materials. Additionally, there has been an increase in stocking due to the impact of the Russia-Ukraine War and the pandemic on shipping.

### Statistics of Imports and Exports in 2022

Unit: NT\$ billion

	2021	2022	Growth rate (%)
Exports	592.308	461.000	-22.17
Imports	202.426	457.034	125.78
Total trade amount	794.734	918.033	15.51
Trade surplus	389.882	3.966	—

### Statistics of CTSP Exports & Imports in 2022 by Industry

Unit: NT\$ billion

Industry	Exports		Growth rate (%)	Imports		Growth rate (%)
	2021	2022		2021	2022	
Integrated Circuit	431.421	354.980	-17.72	179.021	393.924	120.04
Optoelectronics	136.701	77.541	-43.28	8.062	41.570	415.64
Precision Machinery	17.285	20.243	17.12	13.329	17.891	34.22
Computer & Peripherals	3.581	4.532	26.53	1.407	2.830	101.09
Biotechnology	3.158	3.492	10.56	0.493	0.624	26.72
Communications	0.161	0.212	31.72	0.083	0.115	39.26
Others	0.00	0.00	0.00	0.031	0.079	150.41
<b>Total</b>	<b>592.308</b>	<b>461.000</b>	<b>-22.17</b>	<b>202.426</b>	<b>457.034</b>	<b>125.78</b>



## Business recruitment and investment

The Central Taiwan Science Park Bureau (CTSP Bureau) of the National Science and Technology Council continues to create a high-quality and investor-friendly environment to attract high-tech companies. As of the end of 2022, CTSP has achieved excellent results with a total of 240 tenants, out of which 153 have completed company or branch registration. Additionally, 7 companies increased their capital, and 3 companies expanded their plant, with a total investment of NT\$166.2 billion.

Among the 20 new tenants in 2022, 8 were biotechnology companies, followed by 4 integrated circuit and 4 precision machinery companies. Additionally, one company from each industry, including optoelectronics, computer peripherals, innovative materials, and power generation, has joined the list of tenants. There are 19 science-based companies, including Yem Chio co., LTD CTSP Branch, Bitpower International Co., Ltd., Chenfeng Optronics Corporation, KTR Taiwan Ltd., Jung-Yi Steel Co., Ltd., Wafer Works Corporation, Adronic Instrument Manufacture Co., Ltd., Kai Chih Green Energy Technology Co., Ltd., Inteware Co., Ltd., and 1 power company, WePower. Industrial clusters and their associated amenities in the surrounding areas are becoming increasingly comprehensive, and are expected to boost economic prosperity in the Taichung area and increase Taiwan's employment rate.

CTSP achieved excellent business recruitment performance in 2022, despite unfavorable factors such as the COVID-19 pandemic and the Russia-Ukraine War. After the pandemic subsided, we visited Japan, South Korea, Spain, and Germany to recruit new business partners. We will keep a close eye on potential foreign investors to seize any future business recruitment opportunities. Domestically, 12 business recruitment meetings were held, and companies from various industries were extensively invited to invest in CTSP.

Date of Business Recruitment	Location
March 4	Changhua County Medical Instruments Commercial Association
March 25	NARLabs Medical Device Alliance Exchange Event
August 30	Changhua County Yuanlin City
September 20	Forum on Innovative Applications of Smart Medicine and Global Market Development Trends
September 30	Howard Prince Hotel Taichung
October 19	Huwei Park Wastewater Treatment Plant
October 27	Central Region Industrial Parks Administration Office, Industrial Development Bureau, Ministry of Economic Affairs
October 31	Seminar on Future Trends of the Precision Health Industry from the Perspective of Cross-Domain Integration
November 21	Visit from Vietnam
December 9	2023 Promotion event for industry-academia collaboration projects
December 15	Taichung Veterans General Hospital – National Chung Hsing University – Central Taiwan Science Park Startup Forum and Industry-academia Collaboration Matching Event
December 22	2023 Precision Health Project Call for Proposal



Participation in the business recruitment event in Erlin

A Message from the Director-General

Continue to hit record high

Competitive technological capabilities

Optimize competencies for new situations

Endless growth for prosperity

Milestones



## Industries

The CTSP Bureau has attracted high-tech industries from Taiwan and overseas, including 94 precision machinery companies, 34 optoelectronics companies, 15 integrated circuit companies, 53 biotechnology companies, 17 computer peripherals companies, and 27 other companies (communications, digital content, innovative materials, and cultural creative industries), as well as 14 research institutes and incubation centers. Naturally, this has led to the formation of industrial clusters, making CTSP highly competitive.

### Precision Machinery

CTSP has recruited a total of 94 precision machinery companies as tenants, with a total investment of approximately NT\$71.9 billion; the highest number of tenant companies are in the precision machinery industry, which has applications in advanced semiconductors, smart transportation, and green energy, and can meet the demand for advanced process equipment of science-based companies nearby. This will effectively lower production costs and significantly increase industry competitiveness, creating one of the world's top precision machinery industrial clusters.

## Optoelectronics

Leading optoelectronics companies and upstream material suppliers in Taiwan and overseas are moving into CTSP. As of the end of 2022, CTSP has 34 optoelectronics companies in the industry's upstream, midstream, and downstream, and the companies have invested a total of NT\$976 billion, including AUO, Corning Display Technologies Taiwan co., Ltd., Taiwan Nitto Optical, Huga Optotech Inc, Genius Electronic Optical Co., Ltd., H.P.B. Optoelectronics, Ohara Taiwan, Taiwan Color Optics, Inc., Raystar Optronics, Inc., Glory Science Co., Ltd., and General Interface Solution Ltd. Industrial cluster effects will be utilized to increase the industry's overall revenue in the future.

### Integrated Circuit

Currently, there are 15 integrated circuit tenant companies that have invested approximately NT\$1,369.4 billion. Representative companies include: TSMC, Winbond, Micron Memory Taiwan Co., Ltd., SPIL, Applied Materials, Hermes-Epitek, Marketech International Corp., and LCY Chemical Corp. In 2022, SPIL expanded its plant in Huwei Park to accommodate advanced processes for semiconductor packaging. Wafer Works Corporation has established a new branch at Erlin Park to expand its production capacity and technical expertise in power semiconductors and logic devices. This move has made the company a new member of the high-tech industrial cluster in CTSP. This is expected to attract both upstream and downstream industries related to the integrated circuit industry.



President Tsai Ing-wen visits Micron Taiwan





Siliconware Precision Industries Co., Ltd. becomes tenant of Erlin Park

## Biotechnology

CTSP has successfully attracted 53 biotechnology companies to Central Taiwan, including Orient Pharma, Yung Sheng Optical, Yusheng Biotechnology & Medical, GeneReach Biotechnology, Singen Animal Health Industry, Microware Precision, Minima Technology, CH Biotech R&D, Adronic Instrument Manufacture Co., Ltd., and Inteware Co., Ltd., These companies have committed to investing a total of NT\$16 billion, which will contribute to the diversification of the industry. The biotechnology industry encompasses a range of products, including vaccines, medical devices, and diagnostic reagents. Through closer cooperation between industry, academia, research institutes, and medical institutions, the biotechnology industry can achieve significant advancements.

## Computers and peripherals

The park has introduced 17 manufacturers, including Fomex Technology, Fulltech Fiber Glass, Bolymin Inc., WaferLock Corp., GKB Security Corporation, Orange Electronic, Bigbest Solutions, and Bitpower International Co., Ltd. It has also attracted companies such as INPAQ Technology, ADI Communications, and Info-Link Services Co., Ltd., which specialize in the telecommunications and digital content industries. This has increased the industrial capacity in the area.

## Tenant companies

Currently, there are 21 tenant companies that provide operational, management, and technical support services for science-based companies. This includes air suppliers such as Air Liquide Far Eastern, United Industrial Gases Co., Ltd., Air Products San Fu, LienHwa Commonwealth Corp., and Linde Lienhwa Industrial Gases Co., Ltd., one warehousing and logistics company, Central Taiwan Science Park Logistics Co., Ltd.; several solar power companies including Sungen Power Corp., Sunrise PV Electric Power Two, Condensing Energy Technology Co., Ltd., and WePower; and technical service providers for advanced process equipment, such as Canon Semiconductor and ASML. There are also circular economy companies that strongly support science-based companies.

Looking towards the future, the CTSP Bureau will continue to create a high-quality and investment-friendly environment. We will enhance resource matching and integration, explore innovative technologies and R&D talent, and attract emerging industries with development potential through collaboration among industry, academia, and research institutes. At the same time, the CTSP Bureau will prioritize energy conservation and sustainability, setting an example for tenant companies to fulfill their corporate social responsibility.



# Competitive technological capabilities

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## Industry-academia integration

### New business opportunities in precision health industry

The CTSP Bureau has been implementing the Plan to Accelerate Innovation of Biomedical Industry in Central Taiwan since 2019. This initiative provides subsidies for the development of products and systems, along with mentoring and technology matchmaking services. As of 2022, a total of 37 subsidy projects have been approved. Out of these, 27 were for systematic and modularized products and technologies, while the remaining 10 were for market expansion projects. Approximately NT\$126 million has been allocated to support companies in the development, manufacturing, and marketing for smart assistive devices, medical devices for minimally invasive surgery, in vitro precision diagnosis, and medical supplies.



Tang Chiang-Chiang\_Majestic Building, Special Award, 2022 Discover CTSP Photography Contest



To promote R&D and innovation in the precision health industry in Central Taiwan, and integrate ICT industries and biomedical industries in the healthcare field, the CTSP Bureau is continuing to implement the Plan to Accelerate Innovation of the Biomedical Industry in Central Taiwan. In 2022, the bureau initiated the CTSP Precision Health Industry Cross-Domain Promotion Program, which involves mentoring platforms, technological enhancements, software and hardware integration, and guidance for collaboration in the fields of industry, academia, research, and medical. Creating a new blueprint and developing innovative service models to capitalize on opportunities in the restructuring of global supply chains in the post-pandemic era.

The CTSP Precision Health Industry Cross-Domain Promotion Program involves 40 organizations from industry, academia, research, and medicine in 5 cross-domain development projects, which include precision prevention/diagnosis, precision medicine in cancer treatment, cancer immunotherapy, and precision care, as well as the establishment of validation sites. The program has driven companies to invest NT\$28.178 million in the development of innovative technologies, completed the establishment of 2 demonstration sites in medical institutions, and recruited 2 companies to become tenants of CTSP.

### Emerging Technology Application Program

The CTSP Bureau has implemented the Emerging Technology Application Program to encourage science-based companies to form cross-industry alliances or collaborate with academia in the R&D of emerging technologies. The Cross-industry alliances are formed based on industry needs and leverage the capabilities of academic and research institutes, encouraging industry and academia to jointly engage in heterogeneous industry integration and develop key technologies. The program facilitates the cultivation of innovative technology talent, resolves market dilemmas, and supports startups in creating value. The ultimate goal is to achieve innovation and transformation, by creating synergies within industry clusters. The Emerging Technology Application Program approved 8 subsidies in 2022, and attracted companies to invest NT\$34.4 million in R&D.

### Accelerating industry intelligent upgrading

The CTSP Bureau has initiated the implementation of the Plan to Accelerate Industrial Intelligent Upgrading and Digital Optimization in Central Taiwan in 2022. The bureau has been leading tenant companies to collaborate with academic and research institutes to develop smart technologies. The plan encourages industries to adopt innovative technologies for smart machinery and smart manufacturing, driving the industry towards greater intelligence. It also aims to strengthen the technical capabilities of the industry's smart supply chain, leading Taiwan's manufacturing industry back to prosperity.

Five subsidy projects in the field of smart machinery and smart manufacturing were approved in 2022. Smart machinery utilizes advanced technologies, such as online measurement devices and 3D-LiDAR, to accelerate the advancement of processing precision and upgrade process equipment towards intelligence. It also involves the development of automation equipment domestically produced to improve international competitiveness. Smart manufacturing incorporates various AI technologies, including deep learning, big data analytics, image recognition technologies, integrated sensor technologies, and blockchain technology applications to optimize process. The goals of this optimization are to enhance processing efficiency, reduce production cost, and minimize inventory expenses. This plan provided training on smart machinery and smart manufacturing R&D and development, as well as applications, to 304 participants through industry-academia collaboration projects. It is expected that applications for 6 domestic and overseas patents will be submitted, and companies will invest approximately NT\$21.36 million in the development of AI technologies.

This plan recruited experts and scholars in fields related to smart manufacturing to form a consulting and guidance team, which provided guidance to 6 companies to resolve issues related to technology applications, talent cultivation, and new plant planning. Additionally, the team assisted 3 companies in implementing applications and applying the technologies they developed. This reduces the barrier for implementing technology R&D outcomes in practical applications.



## Excellent innovative companies

The companies that received subsidies from the Plan to Accelerate Innovation of Biomedical Industry in Central Taiwan and demonstrated outstanding performance between 2019-2021 have been selected. This initiative aims to encourage these companies to continue expanding the implementation results of the plan and drive the development of the biomedical industry in Central Taiwan. H.P.B. Optoelectronics Co., Ltd. was selected for the Forward-looking Innovation Award and the Excellent Talent Award (left 1 and right 1). Remex Medical Corp. received the Forward-looking Innovation Award and Industry Contribution Award (left 2 and right 2).



Awards ceremony for excellent companies in the Plan to Accelerate Innovation of Biomedical Industry in Central Taiwan



Figure 1



Figure 2

The CTSP Bureau organized the MOST CTSP Excellent Company Innovative Product Awards in 2022 to recognize tenants for engaging in innovative R&D and new product development. Award-winning products include innovative technologies, integrated technologies, international competitiveness, and practical value. Those products were AUO, LINCO Technology Co., Ltd., POJIALI Health Technology Co., Ltd., (from the left in Figure 1), MedicalTek Co., Ltd., H.P.B. Optoelectronics Co., Ltd., GeneReach Biotechnology Corporation, and CH Biotech R&D Co., Ltd. (from the right in Figure 1). 14 products of Winstar Display Co., Ltd. Taichung Plant, Dip Printing Technologies Co., Ltd., AUO Crystal Corp. (from the left in Figure 2), Orange Electronic Co., Ltd., Mosa Safety system Corp., Darwin Precisions Corporation Taichung Branch, Gallant Precision Machining Taichung Branch Co., Ltd. CTSP Plant and the aforementioned companies (from the right in Figure 2) won awards.





Chen-Chen Tsai, Chief of the Investment Division of the CTSP Bureau (4<sup>th</sup> from the right in the second row) and award winning teams

## New industry members

### FITI Program

The CTSP Bureau provided coaching to 50 startup teams that participated in the 2022 From IP to IPO (FITI) Program, organized by the National Science and Technology Council (NSTC). Out of these teams, 22 successfully passed the first round, and 9 teams made it to the second round. In the end, Taiwan Jungu and Hometown Smart Agriculture won the Excellent Entrepreneurship Award. Olproheal Biomimic, Duromaker, iCHASE, Mager Tech., AST.AI, Jue Jun Chong Sheng, and Linggle won the Entrepreneurship Potential Award, showcasing the fruitful outcomes of the CTSP Bureau's guidance for startup teams.

In recent years, the CTSP Bureau has strengthened funding and technical cooperation between startup teams and venture capital by providing a platform for entrepreneurship and customized guidance. The Bureau is continuing to invest resources in industrial collaboration, product prototyping, and market expansion to enhance the innovation capabilities of CTSP. The Bureau aims to drive industrial transformation through innovation, facilitate the rapid growth of startups in Central Taiwan, and establish a sustainable and competitive environment for entrepreneurship.



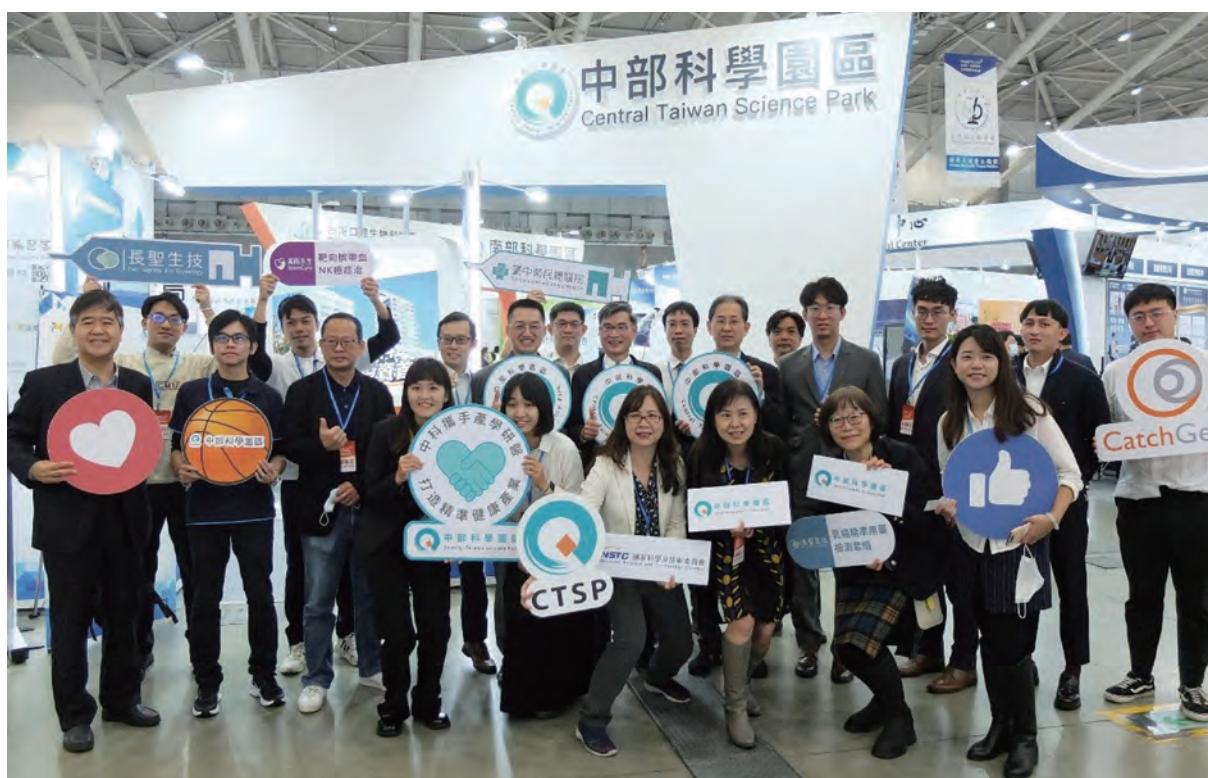
## Scientific research exhibitions

### Healthcare+ Expo

The 2022 Healthcare+ Expo Taiwan, a major healthcare technology event in Taiwan, was held at the Taipei Nangang Exhibition Center, Hall 1 from December 1 to 4, 2022. The CTSP Bureau has integrated 11 companies participating in the Plan to Accelerate Innovation of Biomedical Industry in Central Taiwan and the CTSP Precision Health Industry Cross-Domain Promotion Program. These companies participated in a joint exhibition at the Science Park Exhibition Hall to showcase the excellent results of their project implementations. Six tenant companies of CTSP, namely HIWIN, Provitae Bio, Thumb Up Precision, GeneReach Biotechnology, PharmaEssentia, and MedicalTek Co., Ltd., also set up booths at the exhibition to showcase their cutting-edge technologies and manufacturing capabilities in precision health, minimally invasive surgical devices, smart assistive devices, and other high-end medical equipment.

The Science Park Exhibition Hall – CTSP, included Maxima Biotech Inc. – Cordless ultrasonic dissection, Shuz Tung Machinery – Digital slide scanner, CatchGene – Automated nucleic acid purification system, Remex Medical Corp. – Spinal surgery navigation system, Inteware – Intraoral scanner and dental prosthesis design software, iPreg – Sperm selection chip, H.P.B. Optoelectronics – Comprehensive infant care system and other high-end medical devices developed to meet clinical needs, Ever Supreme Bio Technology – Highly efficient breast cancer medication precision selection test kit for personalized testing, StemCyte Taiwan – Cancer therapy using high antibody affinity allogeneic umbilical cord blood NK, Ideabus Technology Limited Liability – Dementia precision training plan, and Taichung Veterans General Hospital – Integrated physiological parameters and image-based smart care model.

The CTSP Bureau aims to enhance the capabilities of Taiwan's medical device industry by promoting precision prevention, diagnosis, treatment, and care. By fostering cross-domain collaboration to develop precision health brands.



The CTSP Bureau integrated 11 companies to participate in the joint exhibition of CTSP's precision-themed hall





10 highlight companies of CTSP in BIO Asia—Taiwan

## BIO Asia—Taiwan

BIO Asia—Taiwan 2022 was held at the Taipei Nangang Exhibition Center, Hall 2 from July 28 to 31, 2022. The theme for the CTSP exhibition area this year was precision health, digital healthcare, and cross-domain innovation. The CTSP Bureau led tenant companies to display the results of precision medicine, new drugs, innovative healthcare, medical devices, and smart automation in a joint exhibition. A product and technology presentation was also organized to foster connections across various industries and attract investments in startups.

Companies that participated in the exhibition, included PharmaEssentia, Minima, CH Biotech, Taiwan Leader Biotech, EDA Medical Technology, Alar Pharmaceuticals, Launxp Biomedical, Elite Secret Biotechnology, NVP-AUTO CO., LTD., and Luyang Technology. They showcased the abundant biotechnology R&D capabilities of CTSP. Minister Tsung Tsong Wu of the National Science and Technology Council and Chief Secretary Tseng-Pin Chiang of the CTSP Bureau personally visited the exhibition hall to encourage the participants. PharmaEssentia won the 2022 Taiwan BIO Award – Industry Innovation Award, demonstrating the collaborative potential of tenant companies in CTSP to advanced biotechnology and establish an innovative medical ecosystem.

Looking towards the future, the CTSP Bureau will continue to develop a new industrial cluster for medical equipment in Central Taiwan. In addition to connecting the R&D capabilities of academic and research institutes, we aim to integrate advantages of the industrial cluster to facilitate the transformation and upgrading of industries in the region. Our goal is to guide tenant companies towards creating a new era of biomedicine.

A Message from the  
Director-General

Continue to hit  
record high

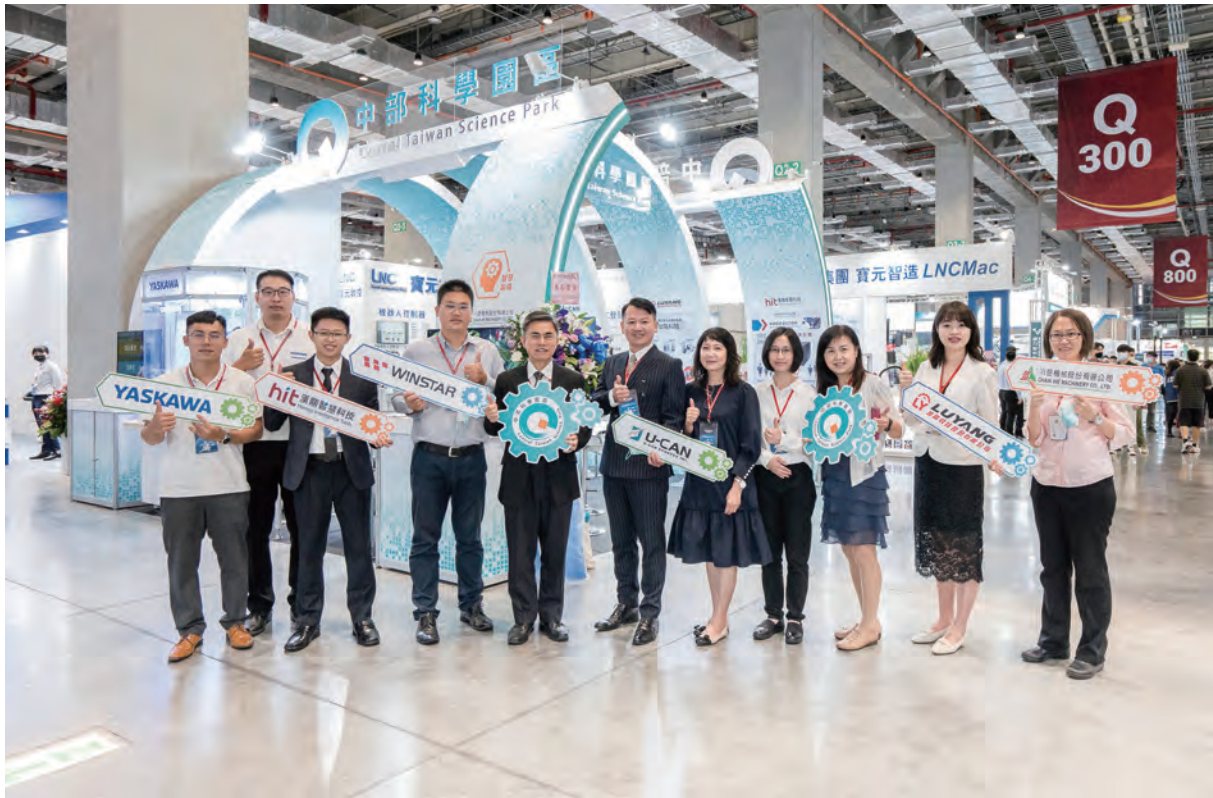
Competitive technological  
capabilities

Optimize competencies  
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Endless growth  
for prosperity

Milestones





Maw-Shin Hsu, Director-General, CTSP Bureau (left 5) visited the CTSP exhibition hall to encourage 6 major companies participating in the exhibition

## Automation Taipei

Automation Taipei 2022 was held in Taipei Nangang Exhibition Center, Hall 2 from August 24 to 27, 2022. The CTSP Bureau invited tenant companies to participate in a joint exhibition under the theme Smart Machinery Cluster, Cross-Domain Integrated Development. The exhibition showcased the results of industrial automation, robotics technologies, smart manufacturing, technology and software smart automation system integration. Six major companies participated in the CTSP exhibition area, including U-CAN Dynatex Inc., Winstar Display Co., Ltd., Yaskawa Electric Taiwan Co., Ltd., Luyang Technology Co., Ltd., Chain We Machinery Co., Ltd., and Hantop Intelligence Technology Co., Ltd. They showcased the impressive results of CTSP's smart machinery cluster, which utilizes the most advanced AI R&D and innovative solutions to drive industrial development.

Furthermore, in addition to the physical exhibition, the CTSP exhibition hall also hosted a one-month online exhibition from August 15 to September 15. This online exhibition aims to establish connections across various fields and attract investment in startups. The panoramic view of online booths allowed investors who were unable to attend the exhibition in person to experience it through digital marketing. This increased cooperation opportunities for the industry, helping companies to develop new business opportunities.

The CTSP Bureau continues to implement the Plan to Accelerate Industrial Intelligent Upgrading and Digital Optimization in Central Taiwan. Through digitalization, the Bureau aims to enhance operational efficiency, promote the transformation and upgrade of the precision machinery industry, and guide tenant companies towards a new era.



## Forum exchanges

### Smart manufacturing industry

Two seminars on Developments in Smart Manufacturing Trends and Applications with a total of 154 participants, were held on August 3 and November 4, 2022. Speakers include domestic experts, scholars, and the principal investigators of academic research teams for NSTC projects. Furthermore, NARLabs was invited to share its technical services during the second seminar. This was done to strengthen the connection between sub-projects of the NSTC's Project for Key Technology R&D for Next Generation Digital Manufacturing and Industrial Intelligent Upgrading. The CTSP Bureau implemented the Plan to Accelerate Industrial Intelligent Upgrading and Digital Optimization in Central Taiwan. The aim is to apply academic research results and encourage industries to adopt innovative technologies, engage in the development of AI technologies, and optimize digital applications.

### Precision health industry

The forum on Innovative Applications of Smart Medicine and Global Market Development Trends was held on September 20, 2022. The forum invited scholars and industry experts to serve as speakers, while companies implementing CTSP projects showcased innovative

technologies and applications. Medical equipment companies can gain insights into development trends of the global smart medicine market and related regulations by case studying that showcase technical capabilities and development experience. This knowledge will enable individuals to understand the key factors involved in the review process for releasing smart medical products into the market and capitalize on market opportunities. The innovative technologies developed by medical equipment companies that received guidance from CTSP over the years were showcased at the event, providing an opportunity for these companies to exchange and match their technologies. The event had a total of 80 participants.

The CTSP Bureau is actively integrating AI, digital technology, IoT, and health big data applications to drive the development of the precision health industry in Central Taiwan. We organized the Seminar on Future Trends of the Precision Health Industry from the Perspective of Cross-Domain Integration on October 31, 2022. We invited 4 experts and scholars to serve as speakers, focusing on the development topics of Taiwan's precision health industry. The speakers shared their experiences with cross-domain integration, covering topics ranging from medical technology development trends, regulations, and channels for releasing smart medical devices into the market, and marketing strategies. They also provided insights into opportunities in the precision health industry, which facilitates innovative developments in this field.



Forum on Innovative Applications of Smart Medicine and Global Market Development Trends

A Message from the Director-General

Continue to hit record high

Competitive technological capabilities

Optimize competencies for new situations

Endless growth for prosperity

Milestones



## Scientific research and technology exchanges

In response to the rapid development of 5G, IoT, and AI, the CTSP Bureau is assisting science-based companies with cross-domain technical cooperation to prepare for emerging markets. The CTSP Bureau organized forums, symposiums, and exchange events in 2022, inviting representatives from industry, academia, and research institutes to share innovative applications and R&D results of each industry. In hopes of strengthening the connection between industry and academia, and facilitate talent exchanges within CTSP.

The Cross-Domain Technology Forum was held on July 20, 2022. The Industry, Science and Technology International Strategy Center and the Industrial Technology Research Institute were invited to give a special report on sustainable manufacturing and electric vehicles, helping companies understand future trends in international green supply chains, enabling them to respond in advance, create new momentum for the next stage of development, and seizing new business opportunities. The CTSP Innovative Technology Forum, held on July 29, 2022, invited experts and scholars from the Industry, Science and Technology International Strategy Center of the Industrial Technology Research Institute, Advantech, the Department of Management Information Systems, and the Office of Industrial Carbon Offset Promotions at National Chung Hsing University, and National Yunlin University of Science and Technology. The forum discussed innovative applications and analyzed trends in various industries, including semiconductors, smart manufacturing, information security, net zero emissions, and electric vehicles. The topic of net zero emissions was emphasized, providing tenant companies with insights for planning sustainable operations.

The Innovative Technology Matching and Exchange Event, held on October 19, 2022, invited the ITRI Mechanical and Mechatronics Systems Research Laboratories and Tunghai University Computer Science Department to analyze trends of the scientific research industry, while the tenant companies including Robuff Inc., Chyichan Electronics Co., Ltd., Yaskawa Electric Taiwan Co., Ltd., and Hantop Intelligence Technology Co., Ltd., showcased their innovative research results and shared insights on smart manufacturing and AI applications in the industry, as well as the outcomes of their innovative technologies. The goal is to promote future cooperation in innovative technology development.

The Industry Innovation Symposium, held on November 22, 2022, invited the ITRI Intelligent Machinery Technology Center, Plastic Industry Development Center, Industry, Science and Technology International Strategy Center,

and GEOSAT Aerospace & Technology Inc. to share the latest market trends and technologies, including smart manufacturing, smart medical devices, UAVs, robots, and semiconductors. The symposium helps tenant companies seize new opportunities in developing of smart industry applications and enhances their industrial competitiveness.

## Industry CEO exchanges

The CTSP Bureau organized the 2022 CTSP Industry CEO Exchange Platform on December 16, 2022, to facilitate communication and collaboration among tenant companies, and to explore new directions for technology industry development in the post-pandemic era. Nearly one hundred CEOs and company representatives participated in the event.

The event featured special guests, including President Dong-Sing Wu of National Chi Nan University (left 1 in the figure below), President Jimmy Chu of the Fair Friend Group, which is one of the world's top three machining tools groups, (right 2 in the figure below), and Chairman Tung-Hui Lu of Micron Taiwan, the leading global company in the DRAM industry (left 2 in the figure below). They shared insights on the latest trends in the smart machinery and semiconductor industries in the post-pandemic era, as well as how to incorporate smart manufacturing to upgrade the industry. Participants collaborated to discuss the trends, challenges, and business opportunities of global supply chains in the post-pandemic era. They also shared insights into industry trends, opportunities, and human resources in Taiwan.

The attendees engaged in heated discussions and were inspired to generate innovative concepts. This increased technical cooperation and exchanges in the industry, with the hope of developing innovative technologies and building product supply chains, which will create more opportunities for cooperation and strengthen the CTSP Bureau's ability to develop an international smart park. Ultimately, this will enhance the international competitiveness of industries in CTSP.



Experience exchanges between parties on the CTSP industry CEO exchange platform in 2022



## International visits

### Broadening the horizons of industries through overseas visits

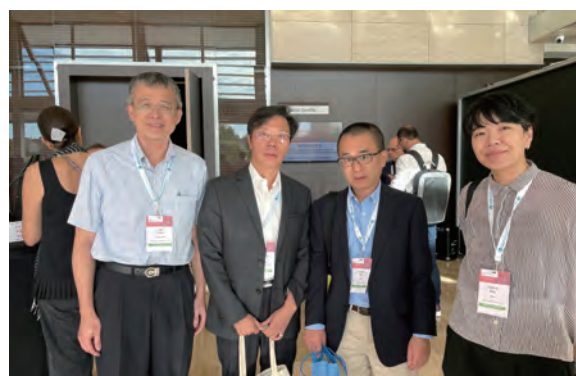
The CTSP Bureau continues to establish sister parks to accelerate the industrial intelligence and global visibility of the wireless industry. Recently, the bureau participated in the 20<sup>th</sup> anniversary celebration of FAIS and the Taiwan-Japan bilateral seminar held at the North Kyushu, Japan from October 18 to 22, 2022. The CTSP Bureau also participated in international conferences organized by science park organizations (IASP, ASPA).

The CTSP Bureau attended the 2022 annual conference of the International Association of Science Parks and Areas of Innovation (IASP) in Sevilla, Spain from September 28 to 30. The CTSP Bureau attended the board meeting and the 2022 annual conference of the Asian Science Park Association (ASPA) in Jeju, South Korea from October 31 to November 2. During the event, participants engaged in exchanges with experts and scholars from around the world, learning about the differences among various science parks and sharing their own experiences in park management with representatives from different countries.

In the post-pandemic era, digitalization, green, and sustainability will shape the future of technology. The CTSP Bureau supports government policy in creating an environment conducive to industry investments and development, and continues to assist industries with innovative development and connecting to the cloud, forming industrial clusters, and sharing resources, to develop innovation ecosystems centered around parks, increase sources of information on emerging technologies of Taiwan's innovative industries, and boost their international competitiveness.

### Business invitation in Germany to seize post-pandemic business opportunities

The CTSP Bureau's Chief Secretary Tseng-Pin Chiang led a group to attend Medica 2022 in Germany from November 12 to 20, 2022, in order to help tenant companies develop the EU market and to increase cooperation opportunities. The group also visited the largest startup and accelerator Startplatz in Cologne, the internationally renowned independent certification institution TÜV, major dynamic plastic manufacturer IGUS, and the head office of Merck. The investment environment and current situation of industrial development in CTSP are introduced through a presentation and symposium, in order to attract multinational companies to invest in Taiwan.



Japan's Kyoto Research Park is a sister park that engages in frequent exchanges with CTSP, and signed a bilateral soft landing agreement. Photo of Deputy Director-General Wen-Fang Shih of the CTSP Bureau (left 2) and Directors Shojiro Oka and Hitomi Kaji of Kyoto Research Park



Group photo of delegation of science parks in Taiwan and team from the Kitakyushu Foundation for the Advancement of Industry, Science and Technology



Photo of three science parks at the 25 annual conference of the ASPA: Director-General Wayne Wang of the Hsinchu Science Park Bureau (left 4), Chief Secretary Tseng-Pin Chiang of the CTSP Bureau (right 4), and Senior Executive officer Ya-Hsien Wang of the Southern Taiwan Science Park Bureau (right 2)

# Optimize competencies for new situations

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## Excellent services

### Upgrading customs clearance performance

The science park customs clearance system integrates certification, storage and transportation, and customs declaration functions, making the import and export of goods more convenient through three-in-one customs clearance service. The system is aligned with operations of the CPT Single Window of the Customs Administration, so tenant companies to easily access information on customs clearance of imports and exports, and anti-counterfeit measures of companies, while providing 24/7 services throughout the year.

The CTSP Bureau upgraded the system's information security and expanded contents of customs clearance data to improve system functions and customs clearance performance in 2022. The system allows tenant companies to quickly complete reviews and customs clearance while ensuring the privacy and safety of company data.



Huwei Park Standard Factory Phase I launched in March 2023



## Diverse industrial and commercial services

1. The Industrial and Commercial Service Building: At the end of December 2022, the occupancy rate has reached over 95% with tenant companies of 30. The categories and institutions include finance, accounting, legal affairs, healthcare, employment services, postal, transportation, food, shopping, The Allied Association for Science Park Industries, ITRI Commercialization and Industry Service Center, Taiwan Laser Application Development Association, and Taiwan Optics/Optronics Manufacturers' Association. Having successfully invited OK Mart to become a tenant in 2022, and significantly improved overall industrial, commercial, and daily life service functions of the Industrial and Commercial Service Building in CTSP!
2. Standard factories: Providing employees of tenant companies with food and financial services.
3. Providing warehouse, pallets, customs declaration services, transportation services, and logistics integrated planning services, etc.



OK Mart has set up in the CTSP Bureau to provide services to people there for business

## Fast administrative services

CTSP provides fast one-stop services for industrial and commercial registration to boost the administrative efficiency when handling applications from tenant companies such as company and plant registration, chattel mortgage, foreign professional employment permit, online reporting of financial statements, and providing legal consultation. For investment applications, after initial negotiations, CTSP provides dedicated personnel and professional consultation services as well as guidance and assistance for companies to become tenants.

## Standard factories leasing

Huwei Park Standard Factory Phase I was built to provide tenant companies of Huwei Park with facility leasing services. Construction was completed in May 2022. The building has 1 floor underground and 5 floors above ground. Unit types include 330 m<sup>2</sup>, 660 m<sup>2</sup>, and 990 m<sup>2</sup>. There are 18 standard units in total. The units can be combined and customized to meet the needs of different companies. After tenants are accepted, it is expected to increase the revenue of Huwei Park by NT\$2.6 billion and above.

In addition to the new Huwei Park Standard Factory Phase I, Erlin Park is currently constructing Erlin Park Standard Factory Phase I. The building has 1 floor underground and 5 floors above ground. Unit types include 495 m<sup>2</sup> and 990 m<sup>2</sup>, and there are 18 standard units in total. Units can be combined and customized. The facilities are divided into south and north buildings connected by a suspended platform and pedestrian passageway. The construction is expected to be completed in Q1 2025, and will obtain green building and intelligent building labels, leading Erlin Park toward the era of smart manufacturing.



Erlin Park Standard Factory Phase I

## Comprehensive services

To achieve better interactions with industrial and commercial service providers in CTSP, the CTSP Bureau established a periodic communication platform and held the 2022 Business Service Operations Observation Symposium on November 11, in order to inspire and expand management concepts of industrial and commercial service providers. Looking towards the future, the CTSP Bureau will continue to make improvements in hopes of providing comprehensive services.



Industrial and commercial Services Operations and Observation Symposium

## Strengthening work knowledge and skills

The Foreign Trade Customs Clearance and Bonding Operations Symposium held on December 8, 2022 not only invited tenant companies but also the Ministry of Finance Customs Administration Taichung Customs, Ministry of Finance National Taxation Bureau of the Central Area, Allied Association for Science Park Industries Import & Export Bonding Operation Committee, and TRADE-VAN. Representatives of the CTSP Bureau and attendees engaged in face-to-face business exchanges to improve the bonding and customs clearance practical abilities of tenant companies. In the afternoon, attendees learned from benchmark companies and visited TSMC's Fab 15, the first semiconductor company in Taiwan to be certified as an environmental education facility. The company introduced its concepts and methods that allow both its business operations and the natural environment to thrive.



Foreign Trade Customs Clearance and Bonding Operations Symposium

Furthermore, the CTSP Bureau organized 5 seminars and symposiums for industry and commerce, taxes, financial statements, accounting regulations, and trade secrets to enhance the knowledge and skills of tenant companies; 2 seminars on foreign trade customs clearance, bonding operations, goods export and import regulations, practical operations, and case study; 4 promotional events for operations of the science park customs clearance system. A total of 5 online courses on inventorizing information assets and risk assessment practices, information security tools 101, etc. were offered between March and June 2022. A total of 8 online courses on practical applications of open source information security tools, SP-ISAC information security salon, etc. were offered between July and November 2022 to strengthen the information security skills of tenant companies.

## Friendly workplace

### Disaster joint defense exercises

The CTSP Bureau conducted a total of 689 labor supervision inspections and 8 occupational safety, health, and disaster prevention promotional events in 2022, in order to protect the safety and health of workers in CTSP, reduce the frequency of occupational accidents, and improve the occupational safety and health performance of CTSP.

A disaster prevention drill was held on October 19, 2022 to simulate joint response for personnel evacuation, fire accident, and leakage of concerned chemical substances when a strong earthquake occurs. The drill was jointly conducted with Mosa Industrial Corp., Yunlin County Fire Department, Yunlin County Environmental Protection Bureau, and EPA Central Taiwan Environmental Incidents Specialist Team, conducting disaster mitigation, readiness, response, and recovery phases, in order to respond to different types of disasters and accidents.



The drill of using water mist to prevent leakage from tanker



## Implementing gender equality

The CTSP Bureau elects outstanding companies for promoting gender equality in the workplace every year to encourage companies to comply with labor regulations and create a harmonious working environment. The purpose of the event is to protect labor rights, create a friendly working environment, improve labor-management relations, and reduce labor-management disputes. Award winning companies in 2022 include High Distinction Award—Micron Memory Taiwan (Left 1), Excellence Award – Gallant Precision Machining Taichung Branch Co., Ltd. (left 2), HUGA Optotech Inc. (right 2), and Winstar Display Co., Ltd. (right 1).

locations, guiding and assisting tenant companies to apply technologies in the workplace for worker health and disaster response management, and continuing to increase the healthy workforce and disaster prevention capabilities.



Photo of Director-General Maw-Shin Hsu of the CTSP Bureau (left 3) and the company winning excellence award for promoting gender equality in the workplace

## Disaster prevention competency training

To strengthen the occupational safety and health culture at CTSP, The CTSP Bureau organized a series of events for Industrial Safety and Environmental Protection Month such as occupational safety and health, disaster prevention seminar and related equipment exhibitions, and visiting tenants with good performance. The 2022 Disaster Response and Safety and Health Seminar was held on December 9, 2022, and invited Director-General Tzu-Lien Tzou of the Occupational Safety and Health Administration, Ministry of Labor to speak on the mainstreaming of labor health and safety in ESG. Three seminars on exploring nature, chemical safety and health management of high-tech companies, and disaster response practices were also held to let tenant companies better understand safety, health, disaster prevention, and innovative concepts. The seminar displayed technology applications in health promotion, disaster prevention and monitoring at 14



Director-General Maw-Shin Hsu of the CTSP Bureau (left 2) tests safety and health products in the exhibition area

Director-General Maw-Shin Hsu of the CTSP Bureau (middle), Director-General Tzu-Lien Tzou of the Occupational Safety and Health Administration, Ministry of Labor (left 3), and Vice Chairman Kuo-Chou Tsai of the Allied Association for Science Park Industries (right 3) kick off the opening ceremony of the seminar





## Talent cultivation

### NEHS Paves the Way for the Future

The National Experimental High School at CTSP (NEHS) was founded 13 years ago to meet the educational needs of the children of employees working at CTSP's companies. NEHS currently offers 37 classes, including 12 high school classes, 12 junior high school classes (1 gifted class), and 12 classes in the bilingual division. Furthermore, NEHS brought in a non-profit kindergarten in 2022 and plans to establish an elementary school department in 2025. The construction of the bilingual, elementary school, and kindergarten buildings commenced at the start of 2023 in order to establish a comprehensive campus environment and provide more abundant learning resources.

Looking towards the future development and operations of NEHS, NEHS will uphold the spirit of the 2019 curriculum, and the school-based curriculum developed with science park features, incorporating international education, and developing school features with the green campus imagery of smart, ecological, sustainable in order to cultivate technological talent with a solid foundation of cultural literacy.

In 2022, 30% of students who graduated from the high school division were accepted into top universities, including medical school, universities of technology, and nearly 70% of students were accepted into national (public) universities. As for the junior high school division, 15% of graduates received 5A and above in the Comprehensive Assessment Program for Junior High School Students. There are even students directly accepted into the high school division after scoring 5A10+ and received six points in composition.

### Non-profit kindergarten

To support working parents at CTSP and lift the burden of taking care of their work and children, the CTSP Bureau built the first non-profit kindergarten on the NEHS campus. The kindergarten is exclusively available to the children

of CTSP employees and is operated by the Macro Vision Culture Foundation. After a year of collective efforts by different units from planning, site selection, to classroom renovation, the kindergarten began offering childhood education services to the children of employees in the park on August 1, 2022. The opening ceremony was held on September 7 and was jointly unveiled by Principal Qin Wen-Zhi of NEHS, Chairman Hsiao-Wu Li of Macro Vision Culture and Education Foundation, Director Ming-Chih Lai of the Allied Association for Science Park Industries Central Taiwan Office, Department Manager Ming-Fa Shen of TSMC, and Manager Ming-Hsun Tsai of AUO Taichung Plant.



CTSP non-profit kindergarten provides a high quality environment for childhood education

The non-profit kindergarten of the CTSP Bureau is currently able to accept 196 children between the ages of 2 years old and under the age of 6 years old. The children are divided into small classes for childhood education at an affordable price. The monthly fee is NT\$2,000 for the first child, NT\$1,000 for the second child, and free for the third child and after or low-income and mid-income households. Furthermore, to help the parents of dual income families go to work without worries and lift the economic burden on their households, extended care services are provided base on the parents needs, and the number of children enrolled. The services are provided after school from 5:00 P.M. and limited to 2 hours, so that children can grow in a safe, healthy, warm, and abundant environment.





## Different honors received by teachers and students

### National competitions

#### Group

- 1 Fourth place in Engineering in the Taiwan International Science Fair
- 2 Third place in the FIRST Robotics Competition (FRC)
- 3 Award of Excellence, High School Division, High School Healthcare Technology Contest 2022
- 4 Taichung Junior High School Technical Education Course Technical Contest Electrical Engineering and Electronics – Basic Electronics Applications 5<sup>th</sup> Place, Hospitality – Culinary Skills 2<sup>nd</sup> Place
- 5 Taichung City Science Fair Second Round High School Division Engineering (II) 1<sup>st</sup> place, Behavioral and Social Sciences 2<sup>nd</sup> place, Environmental Sciences Honorable Mention, Engineering (II) Honorable Mention, Environmental Sciences Honorable Mention

#### Individual

##### Mathematics and information engineering

- 1 STEM Digital Interdisciplinary Education Annual Conference / Teacher Innovative Teaching Materials Contest Bronze Award
- 2 Won first place in BottleSumo Sr. in Robofest Taiwan
- 3 FRC Taiwan FIRST Dean's List Finalist Award
- 4 The 62<sup>th</sup> National Primary & High School Science Fair Second Round – High School Division Behavioral and Social Sciences Honorable Mention
- 5 Mathematics and Information Science Ability Contest National Finals Earth Sciences Third Prize
- 6 STEM Digital Interdisciplinary Creative and Innovative Thinking Student Hackathon Honorable Mention

##### Arts

- 1 National Student Competition of Music Cello Solo Junior High Division B Award of Excellence
- 2 National Student Art Competition Calligraphy Honorable Mention
- 3 The 18<sup>th</sup> National Geographical Knowledge Competition – Environmental Observation and Hand-drawn Map Division National Finals Potential Award, Selected into the National Finals

##### Language and writing

- 1 Selected into the finals of the "2022 Elementary school and Junior High School Writing Contest" of the Sayling Wen Cultural & Educational Foundation
- 2 National Language Contest – Indigenous Language Read Aloud (Paiwan Language) Award of Excellence
- 3 The 22<sup>nd</sup> National Language Contest for Citizens with Hearing Impairment – Speech Grade A

## Industrial talent training

The CTSP Bureau continues to offer talent training and courses for specialized fields (optoelectronics, solar power, semiconductors, precision machinery, biomedicine, and technology management) to enhance the professional knowledge and skills of CTSP personnel. It not only provides park personnel with diverse learning channels but also helps companies improve the quality of current personnel and cultivate outstanding professionals, and further develops core technologies and key abilities of employees working in CTSP. The CTSP Bureau implemented the CTSP Professional and Technical Talent Training Project in 2022, offering 50 training courses under 5 categories. Besides offering specialized courses, it also offered micro advertisement creation, branding, and computer word processing software courses to 1,016 participants.

## College education subsidies

The Science Park Talent Cultivation Plan encourages universities in surrounding areas and the industrial sector to jointly offer module courses and corporate internship courses, recognizing the technology industry's practical needs on technical manpower through industry-academia collaboration and industry training courses. Enhancing practical experience and capability of graduands through internship opportunities to bridge the gap between education and employment in the technology industry, which can effectively solve the workforce shortage in the industry, and implement high quality talent projects. The CTSP Bureau approved subsidies for 12 projects of 7 schools in academic year 2022, and plans to cultivate 595 participants.

## Talent matching

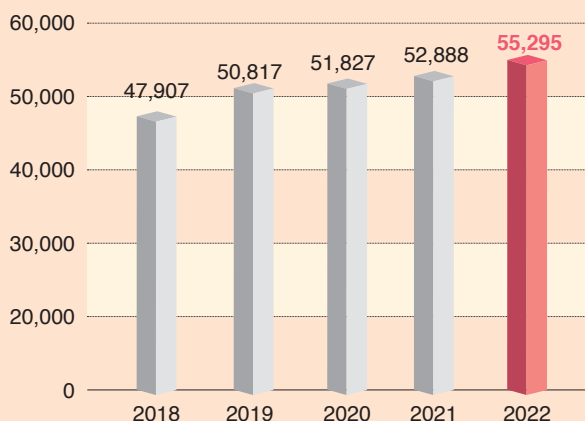
### Recruiting technology talent

The CTSP Bureau implemented the Industry-Academia Technology Exchange & Matching Program in 2022. Three talent matching events were held at National Chung Hsing University, National Formosa University, and CTSP to help companies recruit technology talent and reducing their talent recruitment costs. A total of 21 tenant companies, including AUO, were invited to participate and provide nearly 700 job opportunities. The talent matching events helped graduands to understand the development direction and recruitment needs of tenant companies, as well as industry trends.

Furthermore, the CTSP Bureau, along with industry, government, academia, and research institutes, jointly established the Association of Industry, Academia, and Training of Central Taiwan Science Park (AIATCTSP) in 2008. The AIATCTSP has been organizing forums and academic workshops, and encouraging its members to host contests and talent cultivation events to integrate resources of industry, government, academia, and research institutes. It is an important platform for industry-academia collaboration in training. In recent years, it has also made its presence known at multiple innovation events of industry and academia sectors, integrating resources to enhance the competitiveness of the high-tech industry in Central Taiwan.

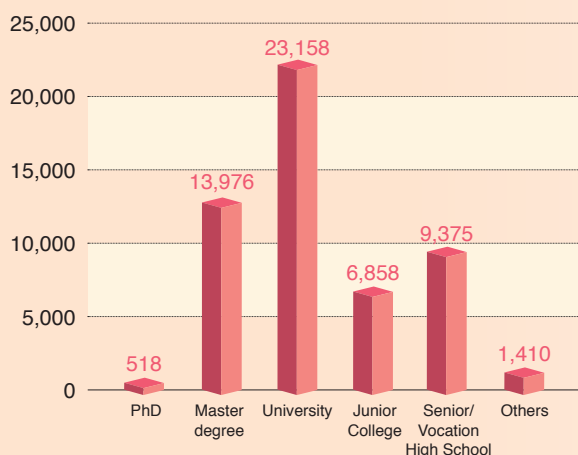
### Statistics of people employed at CTSP

Unit: Number of people



### Statistics of employees' education in December 2022

Unit: Number of people





## Job fairs

To meet the demands of the park development and talent recruit of tenant companies, the CTSP Bureau and Taichung City Employment Services Office co-organized the 2022 CTSP Tenant Company Recruitment on June 11, 2022. The event aimed to fill 1,900 job vacancies at 26 tenant companies, including TSMC, AUO, and Corning Incorporated. Job seekers flocked to the booths of optoelectronics companies, and the matching rate was almost 60%.

Moreover, resume health checks and career consultation services were offered at the event to help job seekers in discovering their career path and enhancing their chances of finding a job.



2022 CTSP Tenant Company Joint Recruitment



CTSP has a total of 55,295 workers

# 55,295

# Endless growth for prosperity

## Park planning

### Unveiling ceremony of the CTSP Bureau, National Science and Technology Council

The Unveiling ceremony of the CTSP Bureau and inauguration ceremony for the Director-General were held on July 28, 2022. The agency's name was changed from Central Taiwan Science Park Bureau, Ministry of Science and Technology to Central Taiwan Science Park Bureau, National Science and Technology Council. The inauguration ceremony was hosted by Deputy Minister Minn-Tsong Lin of the National Science and Technology Council (left 5), who granted the seal to Director-General Maw-Shin Hsu (right 5), and invited Chief Supervisor Guo-Rong Shen (left 4) and Kuo-Chou Tsai (right 4) of the Allied Association for Science Park Industries, former deputy mayor of Taichung City Bruce Linghu (left 3), Yunlin County Deputy Magistrate Shu-Ya Hsieh (right 3), Customs Administration, Ministry of Finance, Taichung Customs Director Mu-Sheng Chen (left 2), Winstar Display Co., Ltd. Chairman Yu-Pin Liao (right 2), Shuz Tung Machinery Chairman Tian-Tsai Chuang (left 1), and NEHS Principal Qin Wen-Zhi (right 1) to witness this historical moment.



Unveiling ceremony Central Taiwan Science Park Bureau of the National Science and Technology Council and inauguration ceremony for the Director-General



The preparatory office for CTSP development was established on October 16, 2002, according to the CTSP Development Preparatory Office Provisional Charter, and the CTSP Bureau was established on January 24, 2007, in accordance with The Organization Act of the Central Taiwan Science Park Administration, National Science Council, Executive Yuan promulgated by the president. After the Executive Yuan National Science Council was restructured into the Ministry of Science and Technology on March 3, 2014, it was renamed the Central Taiwan Science Park Administration under as the Ministry of Science and Technology. The Organization Act of the Central Taiwan Science Park Bureau, Ministry of Science and Technology was promulgated on December 11, 2019, by presidential order, in which the word "industrial" was removed from the name "science and industrial park." The agency's name was once again changed to the Central Taiwan Science Park Bureau of the National Science and Technology Council of in accordance with The Organization Act of the Central Taiwan Science Park Bureau, National Science and Technology Council promulgated by presidential order on January 19, 2022. The CTSP Bureau is a subordinate agency of the National Science and Technology Council and carries out matters specified in The Organization Act of the Central Taiwan Science Park Bureau. The CTSP Bureau comprises several divisions and offices, including the Planning Division, Investment Services Division, Environmental Safety Division, Business Division, Construction Management Division, Land Development Division, Secretariat, Personnel Office, Accounting Office, and Civil Service Ethics Office.

## Taichung Park Phase Two Expansion

Since its establishment in 2003, CTSP has provided one-stop services based on its excellent infrastructures, innovative R&D mechanisms, and the successful experience of mechanisms for collaboration between industry, academia, and research institutes. Taichung, Houli, Huwei, Erlin, and Chung Hsing parks have been developed. Taichung Park is located in the transportation hub between northern and southern Taiwan, providing the advantage of abundant talent and an excellent environment for life and commercial services in the Taichung Metropolitan Area. As a result, both domestic and overseas high-tech companies have eagerly joined CTSP.

Following changes in the global economic and trade situation with consideration to the development and future strategies of Taiwan's semiconductor industry, science parks can be used to provide land for science-based industries such as cutting-edge chip manufacturing, which are having trouble finding land for production, and CTSP is no exception. CTSP consists of five parks, including Taichung, Houli, and Huwei Parks. These parks attracted semiconductor, precision machinery, optoelectronics, computer & peripherals, communications, and biotechnology industries, and the

remaining land available for lease is scattered with area of less than 12 hectares in total. Chung Hsing Park only accepts R&D companies, and only the cultural and creative and industry may engage in mass production. Erlin Science Park is limited by environmental impact assessments, and its industries are required to prioritize low water consumption and low emissions. Chip manufacturing and flat panel display manufacturing industries are prohibited, so it cannot meet the land requirements of companies.

With consideration given to resource sharing, impact mitigation, production capacity balancing, management and dispatch, and risk management, the approximately 89.75 hectares of land adjacent to Taichung Park were selected to provide land for technology industries, such as advanced semiconductor processing, to maintain Taiwan's global leadership in the semiconductor industry.

The CTSP Bureau completed the Taichung Park Phase Two Expansion Preparation Project in 2022, which was approved by the Executive Yuan in Letter Yuan-Tai-Ke-Zi No. 1100041624, dated January 22. The water consumption project was approved by the Taiwan Water Corporation on May 3, and its ultimate goal is to achieve 100% usage of reclaimed water. The electricity consumption project was approved by the Taiwan Power Company on May 19, and the park has committed to acquiring 25% renewable energy after semiconductor companies begin mass production, 40% in 2030, and achieve the goal of 100% renewable energy use by 2050.

Taichung Park Phase Two Expansion Project is a key factor in the development of Taiwan's semiconductor industry and enhancing the industry's overall international competitiveness. The CTSP Bureau is currently accelerating environmental impact assessments and procedures for changing urban development zoning to accelerate industry growth.

## Circular economy

The CTSP Bureau takes action to support the circular economy policy of the government's 5+2 Industrial Innovation Plan, and promotes green developments through a dual management strategy of source minimization and end-of-pipe treatment. The CTSP Bureau and TSMC jointly built facilities in Taichung Park to develop a zero waste center based on the concept of circular economy. Contractors have begun construction in the park, and the recycled raw materials with electronics grade purity produced will be supplied for use in high-tech processes at the end of 2023, which will effectively reduce waste and the environmental impact of the park.

The CTSP Bureau and TSMC jointly established a zero waste recycling center on the land for environmental protection facilities in Taichung Park based on net zero emissions

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and circular economy. The CTSP Bureau continues to actively recruit tenants. TSMC and 4 other companies have been approved to become tenants, and another company receiving is guidance to become a tenant now.

## Ecological protection

Environmental monitoring meetings are held annually in Taichung, Houli, and Erlin parks, with a total of 10 meetings organized in 2022. Another meeting was also convened by the Science Park Development Impact Assessment Follow-up Group, National Science and Technology Council to track and assess the impact of CTSP's land development on the environment in 2022.

Various environmental factors, including air quality, noise and vibration, effluent quality, runoff (groundwater) quality, bottom mud, soil, ecology, traffic, and cultural heritage, are monitored annually at all parks of CTSP in accordance with the environmental monitoring plan specified in the environmental impact assessment documentation. All monitoring results and data are uploaded to the Administration's e-in CTSP Environmental Information Integration website (<https://ein.ctsp.gov.tw/index/index2.aspx>) according to information disclosure principles.

## Corporate social responsibility

The 2020 Sustainability Report published by the CTSP Bureau in 2021, was submitted for the first time to the Asia Sustainability Reporting Awards (ASRA) organized by Singapore's CSR Works International. After facing severe competition, it won the silver award in Asia's Best Sustainability Report Award (Public Sector) on April 4, 2022. The ASRA is one the most prestigious sustainability report awards in Asia, and winning the ASRA is a major achievement, which shows that the CTSP Bureau's efforts in sustainable development have received international recognition.



Taiwan Sustainability Action Award

## Taiwan Sustainability Action Award

The Taiwan Institute for Sustainable Energy is the most iconic sustainability rating organization in Taiwan. In 2021 the Taiwan Sustainability Action Award was introduced, and the CTSP Bureau won the gold award with the theme Sustainable Use, Transforming Wastewater into Blue Gold in 2022, which is the first time the CTSP Bureau participated in the competition. The awards ceremony was held on August 12. Deputy Director-General Wen-Fang Shih of the CTSP Bureau attended the ceremony to receive the award. The CTSP Bureau stood out from the many competitors and was once again recognized for sustainable use of water resources.

The CTSP Bureau's main achievements in providing guidance for water conservation and sustainable use of water resources include CTSP's water consumption intensity (water consumption / revenue) decreased 21.38% from 6.22 in 2018 to 4.89 in 2021. To lift the pressure on tap water supply during the dry season, the CTSP Bureau signed a three party contract, which matched tenant companies with the city government to reach an agreement on water price, water quality, and water volume. This became the first example of a science park in Central Taiwan using external renewable water and had a symbolic meaning.



NSTC Deputy Minister Minn-Tsong Lin (left) hands award to the CTSP Bureau Deputy Director-General Wen-Fang Shih (right)

## Celebration of CTSP's 19<sup>th</sup> anniversary, revenue hit record high above NT\$1 trillion

The CTSP Bureau celebrated its 19<sup>th</sup> anniversary on August 19, 2022, which was witnessed by approximately 250 guests, including Consultant Chi-Jia Hsieh of the Allied Association for Science Park Industries, Legislative Yuan Vice President Chi-Chang Tsai, legislators Wan-Chien Chang Liao, Kuo-Shu Huang, and Chiung-Ying Yang, Superintendent Shi-An Chen of Taichung Veterans General Hospital, CEOs and representatives of over a hundred companies, university presidents, and deans of R&D; the CTSP set a new milestone by becoming a trillion dollar park.





Guests and the CTSP Bureau Director-General Maw-Shin Hsu participate in the opening ceremony of CTSP's 19<sup>th</sup> anniversary

Tenant companies with excellent innovative R&D performance were commended during the 19<sup>th</sup> anniversary celebration, which issued 21 awards including the Forward-looking Innovation Award, Excellent Talent Award, Industry Contribution Award, and Innovative Product Award.

The clubs of tenant companies were invited to give the final performance, AUO's music club performed a saxophone and flute ensemble, A-team Zumba club had a spectacular dance performance that was full of vitality and passion, and fully showed CTSP's combination of technology, humanities, culture, and life. It was an unforgettable summer feast for the guests who shared the joy of CTSP's growth.

### Award ceremony of Discover the Beauty of CTSP – Meet Public Art in CTSP Photography Contest 2022

This year marks the 19<sup>th</sup> anniversary of CTSP. Apart from record high revenue, multiple layers of landscape art and facilities have been elaborated and created in the park. Discover the Beauty of CTSP – Meet Public Art in CTSP Photography Contest 2022 was specially organized in 2022 to introduce more people about CTSP. The event highlights CTSP's excellent culture of attaching equal importance to technology and culture, and builds stronger cultural soft power for CTSP.

Experts selected winners of the first prize, silver prize, and bronze prize, 12 honorable mentions, and 20 special awards for the photography contest; 35 award winning works in total. The award ceremony for the photograph contest was held on October 12 and can be found on the CTSP News Facebook group.

<Sunset Scenery> by Kun-Hui Chang won the first prize as it showed different appearances of <Great Leap of AI-I>, the public art in Houli Park, in the sunset. <Great Leap of AI-I> was created by the world famous French artist Marc Fornes, who drew the inspiration in nature, used a computer for 3D rendering, broke it down into over 5,000 modules, and assembled the modules. Not only fully shows the beauty of technological parameters and image of flowers combined with technology, but it also mirrors hundreds of cherry trees next to it, hoping that CTSP will achieve sustainable and balanced development in production, daily life, ecology, and life.

Furthermore, digital archive certificates were issued for the winners of the first, silver, and bronze awards. The certificate was made by a startup team receiving guidance from the CTSP Bureau's From IP to IPO (FITI) Program – Turing Chain Limited using blockchain technology. Award winners of the photography contest were recorded through blockchain technology, which is tamper-proof, transparent, and open. We welcome everyone to visit CTSP and jointly discover the beauty of CTSP through the spectacular photos.



# Milestones

- 1/22 — The Executive Yuan approved the Taichung Park Phase Two Expansion Preparation Project.
- 3/11 — Ground breaking ceremony for the Phase I construction of standard factory in Erlin Park. The ceremony was hosted by Director-General Maw-Shin Hsu, and attendees included Changhua County Magistrate Hui-Mei Wang, Legislator Yi-Fong Hsieh, and Chief Secretary Chung-Yao Huang of Erlin Township Office.
- 3/28 — Erlin Park reclaimed water treatment system beings operations.
- 4/4 — Participating in the ASRA organized by Singapore, and the CTSP Bureau won the Silver Award in Asia's Best Sustainability Report Award.
- 4/8 — The Water Resources Agency approved the final phase of the CTSP Taichung Park Water Consumption Plan.
- 4/26 — The EPA approved the application to approve contents of the CTSP Huwei Park Development Project Environmental Impact Assessment Statement for future reference.
- 5/10 — Held a public hearing on the environmental impact assessment statement of the CTSP Taichung Park Phase Two Expansion Development Project.



2022 Discover CTSP Photography Contest Honorable Mention Ming-Hsuan Lai\_Beauty of Nighttime Scenery at CTSP



- 6/1 — The Water Resources Agency passed the amended Taichung Park Phase Two Expansion Project Water Consumption Plan.
- 6/11 — Co-organizing the 2022 Towards a New Technology Era Joint Recruitment with the Labor Affairs Bureau of Taichung City Government.
- 6/24 — The Ministry of Science and Technology held the award ceremony for the first contest of the From IP to IPO (FITI) Program in 2022, the 2 teams that received guidance from the CTSP Bureau won the Excellent Entrepreneurship Award, and 4 teams won the Entrepreneurship Potential Award, the best performance over the years.
- 7/7 — President Tsai Ing-Wen visited the A3 Fab of Micron Taiwan in CTSP Houli Park and was accompanied by Director-General Maw-Shin Hsu.
- 7/28 — Holding the Opening ceremony of the National Science and Technology Council Central Taiwan Science Park Bureau and inauguration ceremony of the Director-General, which was hosted by NSTC Deputy Minister Minn-Tsong Lin.
- 8/1 — The CTSP's non-profit kindergarten was opened in NEHS on September 7 to provide childhood education services to children of employees. It is the fourth division of NEHS's five-in-one education system.
- 8/12 — The CTSP Bureau receives the gold award in the 2022 Taiwan Sustainability Action Award issued by the Taiwan Institute for Sustainable Energy.
- 8/15 — Premier Su Tseng-Chang inspected the Huwei Park.
- 8/19 — Organizing the celebration of CTSP's 19<sup>th</sup> anniversary.
- 11/14 — The ground breaking ceremony for the expansion of Buffalo Machinery's CTSP Branch was hosted by Chairman Chin-Feng Chang and attendees included Vice Premier Rong-Jin Shen, representatives of related departments, and Director-General Maw-Shin Hsu.
- 11/15 — The wastewater treatment plant in Taichung Park, CTSP was recognized by the EPA as an Excellent unit in the Environmental Protection / Energy Conservation Division of the 2022 Environmental Education Facilities and Institutions Evaluation.
- 11/15 — Organizing the Environmental Protection Seminar – Net Zero Carbon Emissions in the activity series celebrating the 19<sup>th</sup> anniversary of CTSP, and issueing awards to excellent environmental protection personnel in 2022.
- 11/18 — The Soil and Water Conservation Bureau approved the amended "Taichung Park Phase Two Expansion Project Water Conservation Plan" in principle.
- 11/29 — Organizing the Sustainability Forum and the Commendation and Technology Sharing Event for Excellent Units in Waste Reduction and Recycling, in which Manager Shih-Chun Chou of the BSI Taiwan Branch issued a verification statement for the Administration's CSR Report.
- 12/16 — Organizing the 2022 CTSP Industry CEO exchange Platform hosted by Director-General Maw-Shin Hsu, which invited National Chi Nan University President Dong-Sing Wu, Fair Friend Group President Jimmy Chu, and Micron Taiwan Chairman Tung-Hui Lu to give speeches, and nearly a hundred CEOs and company representatives had attended the event.

A Message from the  
Director-GeneralContinue to hit  
record highCompetitive technological  
capabilitiesOptimize competencies  
for new situationsEndless growth  
for prosperity

Milestones

Central Taiwan Science Park Bureau, National Science and Technology Council

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#### **Houli Park / The Optoelectronics and Semiconductor Hub**

Including the Houli and Chising sites, the 255-hectare area focuses on optoelectronics, semiconductor and precision machinery industries.



#### **Taichung Park / An Industrial Powerhouse**

Covering 466 hectares, the area focuses on optoelectronics and Integrated Circuit industries. With the Taichung Metropolitan Park, Taichung International Airport and the Taiwan High Speed Rail (THSR) Taichung Station nearby, Taichung Park is located in an important transportation crossroads and has brought prosperity to the region.



#### **Erlin Park / The Park of Technology and Ecology**

Covering 631 hectares, this park centers at industries with low water consumption and carbon dioxide emission due to the features of industries in Central Taiwan.



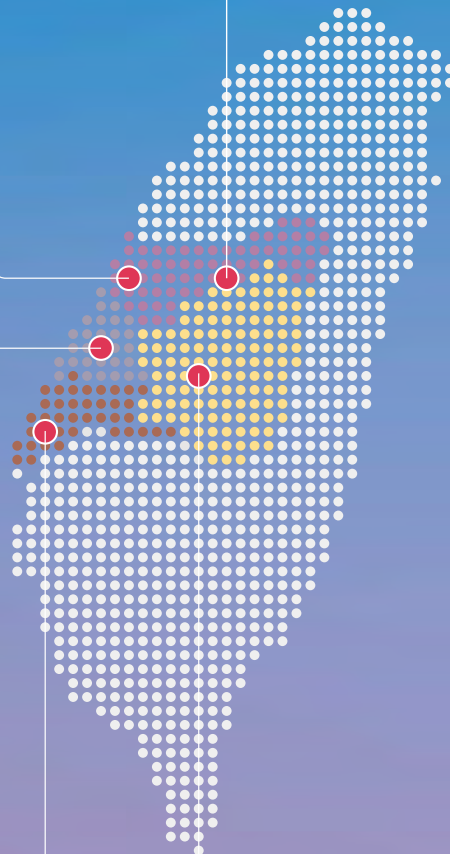
#### **Huwei Park / The Pioneer of Biotechnology**

Covering an area of 97 hectares, the park borders the THSR Yunlin Station in the east. Most tenants are involved in the biotechnology industry, with others working in optoelectronics and communications. This site, together with the nearby HSR-designated area and National Taiwan University (NTU) Yunlin Campus drive the overall development in Yunlin County.



#### **Chung Hsing Park / The Centerpiece for R&D endeavors**

Located in Chung Hsing New Village and covers an area of 36 hectares. The site only allows R&D, and mass production allowed except for the cultural creative industry.





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