7th National Industrial Innovation Award

An introduction of 2021 winners

Organizer: Ministry of Economic Affairs
Executor: Chinese Association for Industrial Technology Advancement

Main Category

Individual Category

Origin

According to the “Industry Innovation Regulations” in 2010, the Ministry of Economic Affairs has held the “National Industrial Innovation Award of the Ministry of Economic Affairs” since 2011 (hereinafter referred to as the "Innovation Award"). Through the national award selection campaign, we hope to set up a learning model for industries, to converge the energy of industry, academy and research, with “innovation, employment, distribution” as the core value, to pursue a new economic model of sustainable development, to break through the industrial development limitations of our country, and to effectively enhance industrial competitiveness.

The Industry Innovation Awards emphasize on innovation, focusing on the humanities, technology and service energy which create value-added benefits for industries. The establishment of multiple awards respectively rewards the “integration and innovation” and “cross-boundary cooperation” of the industry, academy and research community, and further creates value-added industrial innovation organizations, teams and individual models. In order to encourage the excellent performance of the members in the innovation system, besides general enterprises and organizations, the awards are designed to cover small and medium-sized enterprises, women and young people. To encourage academics to promote industry-academia cooperation, individuals also have incentives for “Industry-Academia Collaboration”. The range covers strategic fields such as Precision Manufacture, Intelligent Technology, Living and Healthcare Technology, Green Energy Technology, Innovative Services, Cultural Innovative and Recreation. It also encourages all sectors to combine the regional characteristics to promote the stage breakthrough achievements and performance of the local industry innovation and development. The “Industry Innovation Alliance Award” will be added to the team category awards to guide and encourage the formation of industry-academia-research team alliance to promote cross-boundary cooperation and innovation.

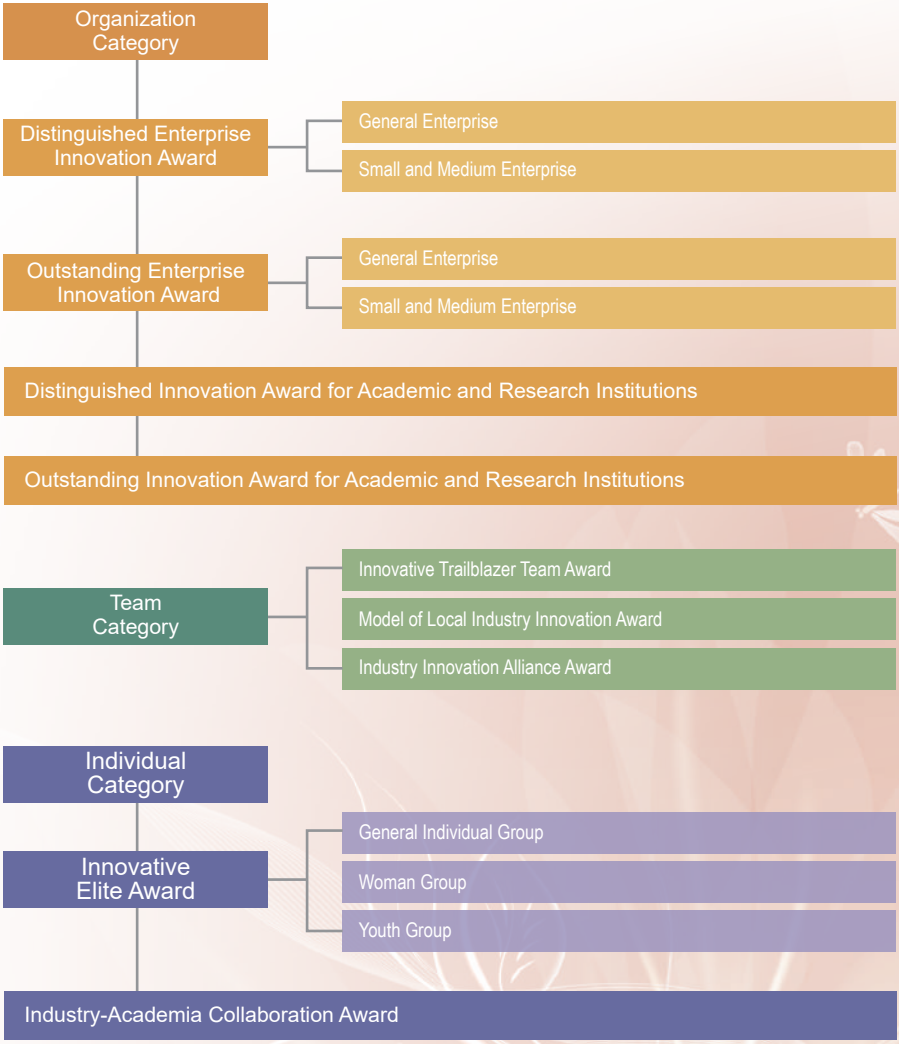
Industrial development is vital to the sustainable growth of national economy. Every unit invested in research and development, every technical or design talent, and every innovative idea are the key forces that drive industrial innovation. This award provides a credible platform that evaluates innovation competitiveness. Through each campaign, in addition to selecting companies, academic and research institutions that contribute to the industry and make the people feel moved, we expect to guide the industry, academia and research circles to break away from the technology-based thinking through these successful

examples of innovation. Also, they can invest in service innovation, aesthetic elements, and then push up the value of the manufacturing in the middle of the smile curve, to achieve the ultimate goal of “Servitization of Manufacturing” and “Technological Service”. The Ministry of Economic Affairs looks forward to not only creating an atmosphere of industrial reform, but also continually stimulating domestic innovation engines through activities that discover innovations and giving credit to industry models. Therefore, all award-winning enterprises, schools, corporations and experts can conduct a rational dialogue and exchange. More importantly, with the mechanism of Industry Innovation Awards, the innovative models of Taiwan industry can be recognized, and we hope that this award can accelerate the transformation of our industry, enhance international competitiveness, and create new value for Taiwan’s industry.

The economy in Taiwan is going through a critical time of rising. In order to promote diverse innovation in the industry, the Ministry of Economic Affairs has edited this special book to share the stories and the innovation competitiveness of the 45 award-winning units. We hope that through the cooperation of all circles, we can transform the critical innovation energy of domestic industry. “Demand drives innovation, and innovation drives industry upgrade.” Let’s make a fresh start and launch the innovation, and together we can create a new blue ocean!

Nomination Catagories

Group	Group Industries
Precision Manufacture	This category includes the intelligent machinery, metal material, electrical and mechanical, machinery, transportation vehicles, automotive electrical components, automatic control, and precision instruments industries.
Intelligent Technology	This category includes the AI, IoT, robots, the semiconductor, IC design, display panel, computer and peripherals, communications and networking, mobile phone and telecommunication equipments, electronic components, software and cloud computing technology industries.
Living and Healthcare Technology	This category includes the new agriculture, medical and biotechnology, healthcare, food, non-metallic materials, chemical, textile and fiber, and glass and ceramics industries.
Green Energy Technology	This category includes the circular economy, solar power, wind power, optoelectronics and optics, oil and natural gas, environmental engineering, green energy building materials and construction, and other energy-based industries.
Precision Innovative Services	This category includes the platform service, cloud computing services, information services, testing services, logistics and storage, transportation services, legal and accounting, human resources, business services, engineering consulting services, and financial insurance industries.
Cultural Innovative and Recreation	This category includes the cultural and creative, movies and television, digital content and publishing, restaurant and tourism, intellectual properties management, education, and architectural design industries.


Organization Category
Distinguished Enterprise Innovation Award
General Enterprise
Small and Medium Enterprise
Outstanding Enterprise Innovation Award
General Enterprise
Small and Medium Enterprise
Distinguished Innovation Award for Academic and Research Institutions
Outstanding Innovation Award for Academic and Research Institutions
Team Category
Innovative Trailblazer Team Award
Model of Local Industry Innovation Award
Industry Innovation Alliance Award
Individual Category
Innovative Elite Award
General Individual Group
Woman Group
Youth Group
Industry-Academia Collaboration Award

Organization Catagories

Outstanding Enterprise Innovation Award (Small and Medium Enterprises)

Outstanding Innovation Award for Academic and Research Institutions

HIWIN® **HIWIN MIKROSYSTEM CORP.**

Business Philosophy

HIWIN MIKROSYSTEM integrates global resources and fosters continuous innovations for better public well-being and a better working environment. Through professionalism, enthusiasm, and ethics, we hope to become a sustainable enterprise.

Reasons for Winning

A Major Semiconductor Equipment Supplier, a Global Patent Holder

HIWIN MIKROSYSTEM has been dedicated to the development of precision motion control components and nanopositioning stages. It provides innovative solutions for companies or manufacturers specializing in semiconductors, display panels, circuit boards, and automation systems. It is a leading local supplier to Taiwan's semiconductor industry, providing nanoscale wafer mapping and lithography systems.

HIWIN MIKROSYSTEM has applied nanoscale technology to a wide range of products, including precision motors, magnetic encoders, air-bearing positioning stages, actuators, drives and controllers. It serves over 55 top-tier companies from all over the world and makes its products available to over 70 countries. Its revenue is estimated to reach over one hundred and ten million USD for 2021. In the past three years, the average expenditure on R&D reached 15% of its annual revenue. As a holder of 293 valid patents, HIWIN MIKROSYSTEM cares about its employees and social responsibilities. It has received multiple awards from the government in recent years.

Key Features

HIWIN Mikrosystem specializes in manufacturing critical electromechanical components for linear motion control and nanopositioning system. Stands at Taiwan while expanding market footprint worldwide, HIWIN Mikrosystem sales channel reaches to more than 70 countries. HIWIN Mikrosystem improves and innovates continuously through global resource integration, overseas laboratories, domestic and overseas industry-academia cooperation, together with world's leading companies as its customers and partners. It has been ranked for consecutive years in Top 100 Patent Applicants awarded by the Intellectual Property Office of the Ministry of Economic Affairs (TIPO), and received Taiwan Excellence Gold Award, Silver Award, Foresight innovation and Industry Contribution Award presented by Ministry of Science and Technology, and is honored as The Best Supplier by leading semiconductor equipment manufacturers . HIWIN Mikrosystem's products are widely used in high-value-added industries such as semiconductor, panel, micro LED, 5G, electric vehicle, PCB, intellectual automation and high-end machine tools. Devoted to cross-disciplinary collaboration and corporate social responsibility, HIWIN Mikrosystem has participated in Taiwan Lantern Festival, Taichung World Flora Expo in which it worked with other Taiwanese companies to present the largest mechanical flower on earth, and has also made its best efforts as one of the Taiwan National Face Mask team members.

Company Profile & Business Contact Information

Core Business	HIWIN Mikrosystem provides various types of critical electromechanical components, drives and controllers, nanometer positioning stages, motion control and positioning systems. Products are widely applied in various industries such as semiconductor, high level electrical equipment, intelligent automation, and machine tool.
Chairman of the board	Olivia S. Y. Chuo
Address	No. 6, Jingke Central Rd., Nantun District, Taichung City 40852, Taiwan
Tel	886-4-2355-0110
Fax	886-4-2355-0123
Website	www.hiwinmikro.tw

AXILE
agile smart machining

BUFFALO MACHINERY CO.,LTD.

Business Philosophy

Philosophy: We make continuous innovation and improvement for better customer satisfaction.

Value: Quality and service build our business.

Mission: We put theoretical science into practice, activate total quality management, and create a sustainable enterprise.

Vision: Become the major high-end machine tool manufacturer in Taiwan.

Reasons for Winning

A Company with Dual Brands: World's Top 4 Supplier of Premium 5X High-tech Machining Centers

Having created two brands, Microcut and AXILE, BUFFALO MACHINERY launches a wide range of high value-added products in possession of 40 patents. Its latest premium products account for 80% of its total sales.

For the past three years, the average annual revenue of BUFFALO MACHINERY has reached over two billion NTD; that is, the average output of each of its employees has reached ten million NTD. The company values industry-academia cooperation which facilitates process innovation. It also collaborates with the Industrial Technology Research Institute to develop sensor technologies, which reduces reliance on imported sensor products. BUFFALO MACHINERY provides clients with life cycle management services through a visualized intelligent monitoring system that foresees an impending fault of machine parts two weeks earlier and boosts productivity by 30% to 200%. In addition, it urges the transformation of Taiwan's machine tool industry and makes technical advances, mass-producing 5-axis machining equipment that applies an intelligent monitoring system ART™. It has established sales channels in the top 7 aerospace and automobile markets in the US, Canada, and Mexico.

Key Features

Buffalo Machinery has dedicated to development of innovation technologies and integration of digitalized intelligent automation and digitization of production and process. By using data management to improve production efficiency and organizational management quality.

Buffalo Machinery provides smart functions and excellent intelligent technologies which meet the market demands. It successfully develops Industry 4.0 smart production technology and applications which collects various data through the machine monitoring module, and further analyzes and processes to useful information for users. All data can be easy access through a user-friendly APP interface.

The innovative technologies enable users to embrace smart manufacturing to increase operational efficiency and productivity, optimize energy and staffing costs, and achieve 24/7 unmanned production, thereby significantly boosting ROI. Meanwhile, the proprietary technologies provide real-time and remote updates for manufacturers to embrace automation with no unplanned downtime.

Company Profile & Business Contact Information

Core Business	Manufacturer of Metal Cutting Machine Tools and 5-axis vertical machining center / Development of industry 4.0 relevant technologies
Chairman of the board	Paul Chang
Address	No. 56, Lane 318, Desheng Road, Daya District, Taichung City 42846, Taiwan (R.O.C)
Tel	886-4-2560-3759
Fax	886-4-2560-3769
Website	www.axilemachine.com

Mytrex Health Technologies, Inc.

Business Philosophy

Vision:To become a leading brand of health technology and high-end medical supplies

Mission:Find a way out of the dilemma for Taiwan's industries and create values for healthcare business

Core Value:Honesty, innovation, progression, excellence, and sharing

Reasons for Winning

The Melt-blown Nonwoven Fabric Supplier that Is Leading the Way in the Asian Market

Mytrex Health Technologies, Inc. has been increasing the value of its products through new product development and innovative manufacturing processes. It strengthens industry-academia and multidisciplinary collaboration to promote its R&D capability, global competitiveness, and the international reputation of Taiwanese brands. Moreover, the company has integrated the entire supply chain and increased its total value of output. It also helps lay a solid foundation for Taiwan's self-sufficiency in medical masks. By developing products with better filtration efficiency, it muscles into the global market of premium filter materials.

Mytrex joined Taiwan's national mask production team to assist in the Taiwanese government's policies in response to COVID-19. It produces ten million medical masks every day, minimizing the impact of the pandemic on Taiwanese people. Meanwhile, it also provides filter fabric for Asian countries including Japan, Korea and China. Recently, the company has been dedicated to the development of superior antibacterial HEPA filter materials. Its future business is promising.

Key Features

Mytrex has been manufacturing meltblown nonwovens industry for more than 30 years. It has been the leading brand of meltblown filter media supplier in Asia region. Mytrex's meltblown filter media hold a 95% market share of Taiwan market. In addition to mask filter media, the products also include high-end air filter media, water filtrate media, thermal insulation, acoustic insulation and others.

Mytrex keeps investing resources in technique development, in order to accelerate product development and increase product value. Mytrex also attempt to develop possible application in variety areas and challenge the limit of application of meltblown nonwoven.

Mytrex fully cooperates with the government to requisition of filter media during the Covid-19 epidemic.

Mytrex had early prepared raw materials of meltblown, integrated with upstream manufacturers to develop meltblown machines and assisted with Taiwan Nonwoven Fabrics Industry Association, in order to alleviate the impact of the epidemic on Taiwanese.

Company Profile & Business Contact Information

Core Business	The core businesses is the development, design, production and sales of meltblown non-woven products.
Chairman of the board	Jane Lu
Address	No.545, Sec. 2, Hezun N. Rd., Zhongli District, Taoyuan City 32060, Taiwan.(R.O.C.)
Tel	886-3-463-1317
Fax	886-3-463-8346
Website	www.mytrex.com.tw

工業技術研究院
Industrial Technology Research Institute

Electronic and Optoelectronic System Research Laboratories,ITRI

Business Philosophy

EOSL has been dedicated to the R&D of system integration and forward-looking technologies focusing on their practical applications. It has been working on gaining industrial independence and improving the global competitiveness of Taiwan's industries.

Reasons for Winning

The Leader of Circular Economy Innovations and Sustainable Application Development

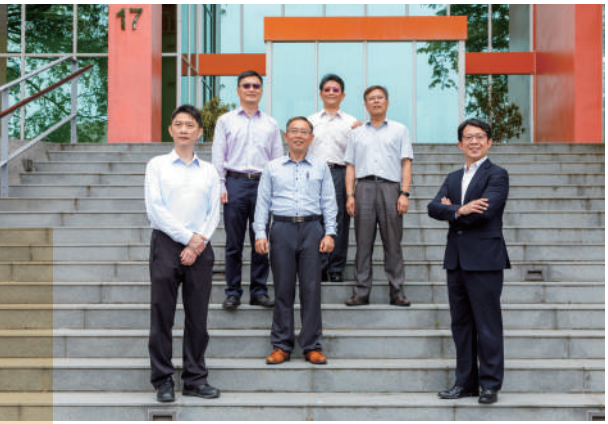
Electronic and Optoelectronic System Research Laboratories (EOSL) has developed its own SOT MRAM and world-leading FRAM in place of SRAM. It has collaborated with multiple industries, successfully developing a full-color display module applying its patented mass transfer technology.

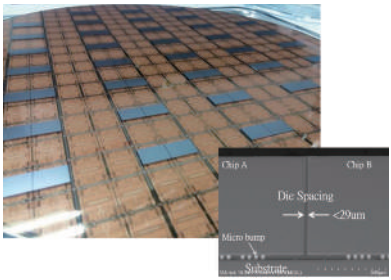
As a promoter of industrial alliances and innovations, EOSL established AI on Chip Taiwan Alliance (AITA), bringing together over 100 domestic companies. It leverages Taiwan's leading position in the semiconductor and ICT industry and helps Taiwan become a major exporter of AI chips and Smart systems. It also established Consortium for Intelligent Micro-assembly System (CIMS) to facilitate the development of micro LEDs. Its patent approval rate in the U.S. has exceeded 80% for five consecutive years, and the patent application rate has exceeded 40% in 2018 and 2019. Its total revenue earned from patent applications for the past three years has reached 115 million NTD.

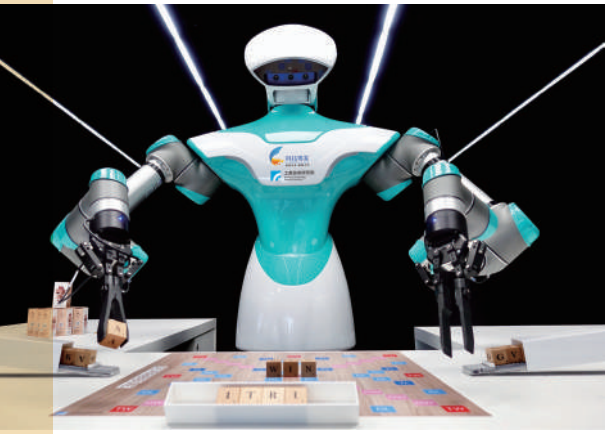
Key Features

In 1974, EOSL was established for the purpose of national development and pioneered Taiwan's semiconductor industry. It has been an organization that makes dynamic adjustments in quick response to industrial needs. Its R&D and technology transfer facilitate industrial transformation; its global platform and service create new opportunities; its policies and standards lead industrial alliance and innovation. It has been the pioneer, partner, and backup of the semiconductor, optoelectronics, display, and AIoT industry.

Bearing ITRI's core value—innovation, honesty, and sharing—in mind, EOSL has made remarkable achievements in innovative ways and established partnership with local and foreign companies with a rigorous approach to R&D. It collaborates with its partners and shares productive results with each other. Looking into 2030, EOSL will share the better future with the global community through its Smart solutions to cross-domain integration.







Company Profile & Business Contact Information

Core Business	Through technology research and development, authorization, service and transfer, we are committed to the innovative development of Taiwan's semiconductor, optoelectronics, display, and Smart system integration applications.
Chairman of the board	Edwin Liu
Address	195, Sec. 4, Chung Hsing Rd., Chutung, Hsinchu County 31040, Taiwan, (R.O.C)
Tel	886-3-591-7200
Fax	886-3-582-0074
Website	www.itri.org.tw

TTRI 紡織產業綜合研究所 Taiwan Textile Research Institute

Taiwan Textile Research Institute

Business Philosophy

We look forward to becoming the top-tier institute that provides integrated services in the textile industry.

Reasons for Winning

The Pioneer that Leads Taiwan's Textile Industry through Cutting-edge Technologies

Established over 60 years ago, Taiwan Textile Research Institute (TTRI) is the world's only professional textile institute that provides one-stop services, from manufacturing, testing, certification, industry information, and training to industrial research.

For the past three years, it has been working on textile innovation and cross-disciplinary R&D, receiving certifications and awards at home and abroad. Furthermore, it urged the local companies to establishment of R&D centers to increase the capability of independent technology development and nurture R&D talents.

TTRI develops innovative high-value textiles, recycled sustainable materials, and digital manufacturing to upgrade industrial and enhance commercial value, making Taiwan's textile industry an international industrial model. In addition, for expanding Taiwan's textile output value, TTRI has urged domestic enterprises to establish their own brands and connect with international brand supply chains. Moreover, since the outbreak of COVID-19, TTRI has assisted the Taiwanese government in dispatching protective equipment and joined the national production team of masks and protective suits.

Key Features

Established more than 60 years ago, TTRI is the world's only institute that provides integrated services. It has facilitated the participation of Taiwan's textile industry in the supply chains of international brands, which earns Taiwan a worldwide reputation as a hidden champion. TTRI has also become the role model for many countries that would like to develop their textile industries.

In recent years, TTRI has been developing several state-of-the-art technologies, such as the mass production of graphene, smart materials, RFID yarns, 3D distance woven fabrics, micro/nano fibers, smart textile ink, and smart wearable textiles. As a think tank in the textile industry, it has set up specifications and standards for textile testing and verification. In the face of the COVID-19 pandemic, TTRI has soon become the coordinator between the government and the textile industry, successfully increasing the production of disease prevention supplies.

Institute Profile & Business Contact Information

Core Business	Materials, fibers, yarns, fabrics, non-woven fabrics, dyeing and finishing, final products, textile soft and hardware, information and knowledge services, testing and verification and other industrial technology research and development services
President	Kuei-Chi Lee
Address	No. 6, Chengtian Rd., Tucheng Dist., New Taipei City 23674, Taiwan (R.O.C.)
Tel	886-2-2267-0321
Fax	886-2-2267-5110
Website	www.ttri.org.tw

英業達 Inventec

Inventec Corporation

Business Philosophy

Our business philosophy is "innovation, quality, humility, and practice." We innovate and create values together with humility, positivity and through objective, visionary decision-making in pursuit of consistent and perfect quality.

Reasons for Winning

The Creator of the 5G/AI-based Automated Production Line

Inventec has built the world's first fully virtualized, Open-RAN-based 5G independent network for enterprises. Through the application of 5G, along with AOI and AGV equipment, a company can reduce its personnel by 20% and defect rate by 30% in a year. Inventec holds patents on portable electronic devices and antenna technologies. It has cooperated with National Sun Yat-sen University to develop innovative 5G miniaturized MIMO antennas, which have been granted more than 200 patents worldwide. What's more, the company has been working on the development of AI and building the ecosystem of Taiwan's AI industry.

Inventec integrates internal and external resources, nurturing start-up companies and research institutes. Three of the start-up companies that Inventec has mentored won the annual championship for three consecutive years. At the same time, Inventec has donated 30 million NTD to artificial intelligence schools and sent staff for an exchange of ideas about AI applications. Through technological innovation, it seeks to enhance the development of Taiwan's AI supply chain. It even plans to increase R&D investment by more than one billion NTD, which is estimated to create an output value of more than ten billion NTD.

Key Features

Inventec has been devoted to the development of smart manufacturing for years. In recent years, in addition to establishing an AI center, it has been improving the 5G private network system and stepping into the field of automotive electronics. Its objective is to transform its factories into smart ones that apply 5G technologies.

In response to the future demand for ultra-high transmission rates in the 5G generation, Inventec has partnered with National Sun Yat-sen University to develop innovative 5G miniaturized MIMO antennas, which will diversify export markets and get Taiwan ready for the upcoming 5G generation. Meanwhile, it has also established Taiwan's first smart factory which employs open-RAN 5G private network and artificial intelligence. In the future, the factory will begin commercial operation and be sold to overseas telecom operators.

To build up AI technologies for self-driving vehicles, Inventec has developed VectorMesh, an advanced AI virtual processor. The project involves the introduction of domestic compilers and the cooperation with solution providers to build an ecosystem of the AI industry. Inventec has invested over one billion NTD, which is expected to create an output value of more than ten billion NTD.Moreover, Inventec also provides the multi-functional vehicle recorder and in-cab display system for WinBus, Taiwan's first licensed self-driving bus developed by the Automotive Research & Testing Center (ARTC). The self-driving buses are expected to be mass-produced in 2021.

Company Profile & Business Contact Information

Core Business	Computer software and hardware products, communication and digital assistant product assembly and sales, solar cell manufacturing and sales, etc.
Chairman of the board	Tom Cho
Address	No. 66, Hougang St., Shilin Dist., Taipei City 111059, Taiwan (R.O.C.)
Tel	886-2-2881-0721
Website	www.inventec.com

瑞助營造股份有限公司
REIJU CONSTRUCTION CO., LTD.

REIJU Construction Co., Ltd.

Business Philosophy

Passion, innovation, efficiency, and execution are our business philosophies and criteria.

Reasons for Winning

A TRANSFORMED CONSTRUCTION COMPANY-FROM TRADITIONAL TO GREEN AND SMART

With smart engineering technologies, REIJU enables its construction projects to save over 20% of energy. As a green and turn-key EPC construction company, REIJU integrates technologies, such as IoT, BIM, and VR into traditional construction. REIJU's paperless policy also reduces paper use and CO_2 emission by 2,100 kg annually. As an exceptional contractor recommended by Taipower Central Region Construction Office, REIJU can reduce as much carbon emission as Daan Forest Park can absorb annually. Undertaking the development project of Shalun Green Energy Science City Section C, REIJU earned three diamond-level certifications in green building, carbon footprint, and smart building. Through diversified operations, the company expands its local and overseas business. As the first construction company that passed the verification of the energy management system, REIJU integrated business resources to establish "Taiwan Green Technology Association," promoting industry-academia cooperation to achieve improvement in constructing techniques and materials. REIJU also puts sustainable operation into practice by establishing the first construction material bank, which provides construction tools and materials for reuse.Since the outbreak of COVID-19, TTRI has assisted the Taiwanese government in dispatching protective equipment and joined the national production team of masks and protective suits.

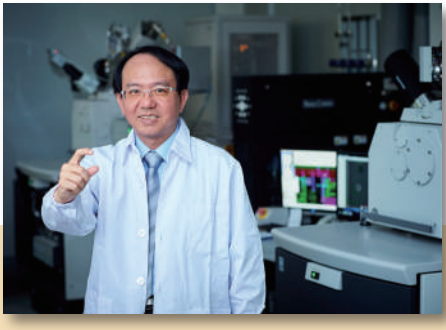
Key Features

REIJU combines innovative ideas and the ESG sustainable practices, securing its leading position in the construction industry. Since 2017, the company has devoted itself to the fields including wind, water, gas, and electricity, while developing four major domains of green energy: energy creation, energy saving, energy storage, and smart integration. Upon the completion and operation of the eight wind and solar power plants undertaken by REIJU, there will be three billion kWh of green electricity generated annually for Taiwan and a reduction in carbon emission by 1.51 million ton, which is 3,882 times the amount of carbon sequestered by Daan Forest Park annually. Since 2016, REIJU has built rainwater tanks that can store a total of 1,714 tons of water for reuse. With the introduction of BIM, which facilitates vertical and horizontal integration of the production chain, the company can reduce about 354 T-CO2e caused by poor construction per case. It has also integrated upstream and downstream green supply chains, established "Taiwan Green Intelligent Technology Association" in 2011, involved up to 292 companies in the strategic alliance, and promoted green energy and sustainable development in the industry. Its long-term goals are to become an EPC company capable of purchasing equipment and to devote itself to achieving common good among environments, enterprises, and societies. In the future, it aims to become a leader of near net-zero-energy buildings.

Company Profile & Business Contact Information

Core Business	Construction, repair works and management
Address	9F., No. 50, Sec. 1, Zhongxiaow.RD., Zhongzheng Dist., Taipei City 100506, Taiwan (R.O.C.)
Tel	886-2-2314-5168
Fax	886-2-2314-8168
Website	www.reiju.com.tw

Integrated Service Technology Inc.



Business Philosophy

iST's Value Is Continuing to Create Value for Our Customers.

Reasons for Winning

The Facilitator of R&D, the Guardian of Product Quality

Integrated Service Technology (iST) is the first company that provides semiconductor verification and analysis services in Taiwan, pioneering a new model of circuit modification for the semiconductor industry. This new model significantly reduces the time needed from design to mass production and saves R&D expenses of more than 10 trillion NTD for the semiconductor industry in Taiwan.

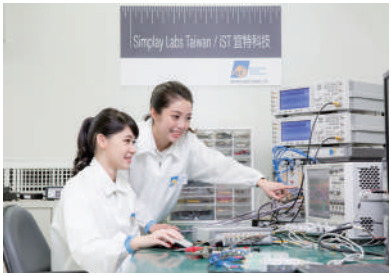
With more than 10,000 clients worldwide and more than 700 services, iST provides the latest verification and analysis services to help its clients with product quality control and speed up the R&D and launch of electronic products. Since its operation, the company has provided more than 180,544 solutions for its clients.

iST has successfully established an outsourcing model for verification and analysis services, becoming a designated third-party verification laboratory for major brands. It incorporates international standards into its verification practices. In cooperation with DEKRA, the world's largest automotive certification company, iST has become the first provider of automotive electronics verification services in Taiwan and the world's only platform for from-wafer-to-system automotive verification.

Key Features

The facilitator of the R&D of electronic product and the guardian of product control iST is the first private enterprise that provides semiconductor verification and analysis services in Taiwan, pioneering a new service of circuit modification. Unlike previous verification services, the new model greatly reduces the time needed from IC design to mass production and saves R&D expenses. It has completed 176,832 R&D and verification projects and 369,130 IC circuit repairs, saving more than 10 trillion NTD for the semiconductor industry in Taiwan. iST's innovative service model plays an indispensable role in the semiconductor industry. The electronics industry requires the assistance of iST from cradle (R&D) to grave (customer returns).

The leading solution provider in the high-tech industry iST provides more than 700 services for multiple industries, including failure analysis, reliability verification, material analysis, semiconductor verification, AI/5G/IoT/automotive electronics, and space verification. Keeping track of industrial development, the company provides the latest verification and analysis services, helps its clients with product quality control, and speeds up the R&D and launch of electronic products. It has provided 180,544 solutions in total. With more than 10,000 customers worldwide from a wide range of industries, including the upstream, midstream and downstream companies in the electronics industry, iST is Asia's largest provider of the world's most comprehensive verification and analysis services.



Company Profile & Business Contact Information

Core Business	Founded in 1994, iST began its business from IC circuit debugging and modification and gradually expanded its scope of operations, including Failure Analysis, Reliability Verification, Material Analysis, Automotive Electronic Verification Platforms, Space Electronic Platforms and Signal Integrity Testing Services. iST has offered full-scope verification and analysis services to the IC engineering industry, its customers cover the whole spectrum of the electronics industry from IC design to end products.
Chairman of the board	Danny Yu
Address	No. 10-1, Lixing 1st Rd., East Dist., Hsinchu City 300094, Taiwan (R.O.C.)
Tel	886-3-579-9909
Fax	886-3-666-2793
Website	www.istgroup.com

Business Philosophy

The factory is not only a place to manufacture products but also a leisure park, while being a classroom to pass on knowledge, a museum that collects artworks, and a new starting point for the industry and society to create values together.

Reasons for Winning

The Best Example of Community Revitalization

TCC pioneered the "Harbor, Power Plant and Factory, Three-in-One" circular design, making it the world's only production park with zero waste, low carbon and zero pollution. With the production park as its base, TCC DAKA Open Eco-Factory creates a field that integrates ecology, knowledge, culture, and recreation. “DAKA”, which means “to look far into the distance” in an indigenous language, integrates cement elements, introduces green energy devices, and plans three kinds of guided tours: circular economy, ecological culture and Cement Handcrafts. The guiding and management personnel in TCC DAKA are hired locally. TCC DAKA provides local youth and tribal mothers with entrepreneurial counseling, resources and platforms, and drives the development of cultural characteristics of the original hometown. The average monthly revenue of DAKA market tribal merchants reaches NT$100,000, creating a 2.5% employment rate in local villages. On the premise of not making profits, TCC established a public welfare fund and cooperated with different industries, such as Uni-President Group and LDC Hotels and Resorts. TCC also invites cultural creative teams to organize exhibitions, implements corporate social participation, and practices community development and integration.

Key Features

TCC is a “green environmental engineering company focused on the complex relationship between humans and nature.”

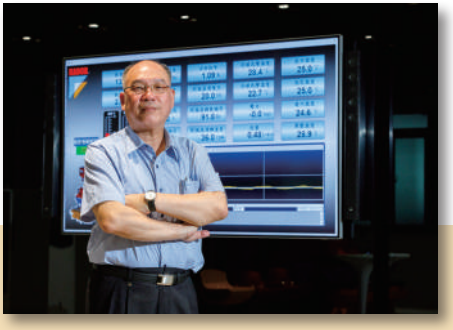
Using the 3-in-1 circular economy park as the base of innovative development, TCC utilizes the cement kiln co-processing technology to transform industrial waste from high-tech and steel plants as well as household waste into resources that can be reused. TCC has also invested in key technologies to achieve carbon reduction and established the largest carbon capture and microalgae cultivation application base in Asia.

In order to realize the ideal of factory and community integration, TCC established “TCC DAKA Open Eco-Factory.” Through circular economy tours, cross-industry cooperation, as well as counseling for entrepreneurs in the community, TCC brings in resources from different industries, and has started a brand new method of social communication. The warmth and rustic charm of cement combined with culture and creativity blends naturally into life, making TCC DAKA Open Eco-Factory the first certified tourism factory in the heavy industry.

Company Profile & Business Contact Information

Core Business	The three core businesses of TCC are cement, energy (renewable energy, energy storage, and battery manufacturing), as well as environmental protection.
Chairman of the board	Nelson, An-Ping Chang
Address	No. 113, Sec 2, Zhongshan North Rd., Taipei City 10491, Taiwan (R.O.C.)
Tel	886-2-2531-7099
Fax	886-2-2531-6650
Website	https://www.taiwancement.com/en/index.html

HABOR PRECISION INC.



Business Philosophy

With the core technology and know-how, we provide customized products and create economic benefits through mass production.

Reasons for Winning

An Experienced Company Striving for the Development of Taiwan's Smart Machine Tools

Redefining international standard of precision and marketing their brand worldwide¬, HABOR PRECISION INC. focuses on developing eco-friendly and energy-saving products as well as aiming for Industry 4.0. The company is also dedicated to strengthening the industry-academia cooperation. In Japan, 6 out of the 10 top machine tool manufacturers have adopted products of Habor.

Habor develops new products to satisfy top-tier international clients and helps domestic clients build smart machine tools to target the high-end international market through smart manufacturing. Habor aim for four areas: "Material Innovation," "Enenrgy Saving and Carbon Reduction," "Technology Upgrade," and "Added Value". Over 80% of the components of their products are made by more than 280 local suppliers, which forms a complete industrial chain. During the COVID-19 outbreak, Habor voluntarily collaborated with 30 Taiwanese machine tool and component manufacturers to set up mask production lines by building additional automatic mask-making machines in a short time.

Key Features

Founded in 1981, HABOR PRECISION INC. has been focusing on designing, manufacturing and sales of high-accuracy and constant temperature control cooling units specified for various industrial machineries. Over the past 30 years, the company has invested great efforts in product innovation and temperature control technologies. All of Habor's products are reliable with high quality since Habor tests every product based on clients' requests. With rich experience in global markets, Habor provides customized mass production of industrial cooling solution for industrial machineries with economic benefits.

Habor also pays great attention to staff training. It holds training sessions and invites guest lecturers by applying for Ministry of Labor's job training programs. In addition, it cooperates with universities such as National Chin-Yi University of Technology, National Formosa University, and Hsiuping University of Science and Technology to facilitate industry-academia cooperation and enhance R&D capabilities.

Company Profile & Business Contact Information

Core Business	Professional design, manufacture, sales and service of high-precision constant temperature cooler product series for various machinery
Chairman of the board	Habor Hsu
Address	No.77, Industrial 20th Rd., Taiping Dist., Taichung City 41154, Taiwan (R.O.C.)
Tel	886-4-2271-3535
Fax	886-4-2271-3588
Website	www.habor.com

ecoco 宜可可循環經濟 **FUN LEAD CHANGE CO., LTD.**

Business Philosophy

PLAY FOR HOME EARTH

Reasons for Winning

Circular Economy Concept of "ECO + Coin"

FUN LEAD CHANGE CO., LTD. builds a big data system by introducing Internet of Things (IoT) to the circular economy and interact with users through their platforms and games. They founded the brand "ECOCO", an efficient automatic intelligent recycling system that makes environmental protection easier and more accessible to the public. Their AIoT-based circular economy technology enables real-time machinery monitoring, real-time user feedback, and remote maintenance. The technology can also analyze user behavior, regional profile, and comsumption pattern. As a result, the company can formulate better business strategies and apply precision marketing.

The ECOCO AIoT-based circular economy platform is an innovative operation model of circular economy that increases added value of the whole industry. This is the first platform in Taiwan that applies AIoT-based technology to enable smart city and circular economy. This Taiwanese platfrom allows the company's presence in countries with non-bottle deposit and increases brand awareness overseas.

Key Features

The ECOCO, a brand founded by FUN LEAD CHANGE CO., LTD., is an AIoT-based innovative circular economy platform with point reward system. Combined with the Internet of Things (IoT) recycling system and the appplication of ECOCO service module, the platform makes recycling smart and accessible to the public to reduce required manpower and time of processing. With the innovative circular economy big data system built through IoT technology, the platform also increases the quality of recycled items at the front end to increase the recycling rate. To encourage more people to participate, the ECOCO collaborates with business alliances to provide discounts to customers. This rewards customers for their action of environmental protection and allows enterprises to fulfill their social responsibilities.

The ECOCO upgrades the conventional recycling process with the platform-based operation model to help companies create service differentiation and polish the public image, increasing companies' sales. In addition, this platform is effective for public sectors to deal with environmental issues. During 30 months of operation, the platform has been used over 400,000 times and 58% ECOCO points have been redeemed.

Company Profile & Business Contact Information

Core Business	O2O circular economy platform that integrates channels, software and hardware development, and resource recovery back-end to create new value for asset revenue
Chairman of the board	Andrew Lee
Address	9F.-6, No. 457, Chenggong Rd., West Central Dist., Tainan City 70057 , Taiwan (R.O.C.)
Tel	886-6-222-5050
Fax	886-6-313-3987
Website	www.ecoco.xyz

SkyEyes GPS Technology Co., Ltd.

Business Philosophy

Integrate high-end information technology and operation management model to enable real-time, accurate, and safe transportation.

Reasons for Winning

Deepen Industry-academia Cooperation to Enhance International Competitiveness

SkyEyes GPS Technology Co., Ltd. is the only R&D-oriented company in the industry with academia resources. SkyEyes have taken the lead and launched driving support system, AI dispatching system, and driving attention monitoring system to boost industrial upgrade for Industry 4.0 and develop eco-friendly products. The driving support system that enhances driving safety of commercial vehicles has caught the government's attention when firstly launched. In 2018, the driver vision assistance system was made mandatory for large vehicles to enhance safety of all road users. This system also increases the whole industry's annual revenue, with an average of NT$10 million. With estimated market share of 15%, this system creates NT$70 million of annual revenue for the whole fleet management industry.

Around 25 thousand vehicles have adopted the service of SkyEyes, with estimated market share of 15%. SkyEyes will continue its innovation in the fleet management industry and take the leading position in the intelligent transportation management to attract clients overseas.

Key Features

SkyEyes GPS Technology Co., Ltd. originates from the Business Incubation Center of Feng Chia University. It is the only R&D-oriented company in the industry with academia resources. The SkyEyes Intelligent Transportation Management Cloud provides holistic solutions for people, vehicles, and goods. We are the leader in the intelligent transportation management and dedicates to the transportation industry innovation. In addition, we have established a flexible management system through the flat organization to help our staff form positive relationships based on trust.

SkyEyes will join Foxconn Technology Group's MIH EV platform alliance in 2021. We adhere to the philosophy of sincere service to make people safer and transportation more efficient. At the same time, we also aim to assist the transportaion management industry to explore new fields and upgrade entirely.

Company Profile & Business Contact Information

Core Business	Integrated intelligent transportation management solutions, including fleet management systems, driver attention assistance systems, Internet of Vehicles applications, artificial intelligence dispatching systems, and driving behavior management analysis systems.
Chairman of the board	Jimmy Chou
Address	29F., No. 447, Sec. 3, Wenxin Rd., Beitun Dist., Taichung City 406505 , Taiwan (R.O.C.)
Tel	886-4-2451-3012
Fax	886-4-2451-3018
Website	www.skyeyes.tw

GENIUS TOY TAIWAN CO., LTD.

Business Philosophy

"Make toys educational, and make education fun"

Reasons for Winning

Developed in Asia, Globally Patented, A Science Teaching Aid Kingdom

Genius Toy Taiwan Co., Ltd (Gigo) has more than 600 unique designs and 100 patents from the thousands of hours R&D work they have done. The toys and components have all been tested to the highest European market standards in laboratory conditions, showing that they are suitable for use at home and in classrooms. Through inter-industry collaborations, with universities, and corporations, Gigo is constantly finding new ways to build bridges in society and spread the message of "learning through play". In particular, Acer CloudProfessor was a success, along with intelligent robot workshops and the introduction of S4A. Incorporating a variety of coding languages into the GigoBlockly system means it is open and accessible to more young learners, and helps to cultivate the next generation of AI enthusiasts.

Other projects are aimed at helping seniors integrate with the younger generation. By making fun games that stimulate memories and discussions, there are new bonds being formed between the generations. These games test memory, reactions, and social interaction in ways that leave everyone feeling happy.

Gigo has been recognized for some of these successes, and has received the iF design award, Parent Choice award and Toys Go Green prize. Gigo is very proud of these achievements and wherever possible is making environmental strategies a part of the business aims. For example batteries are being replaced with Green Power systems, which is really another opportunity for people to learn about solar, wind and other types of renewable energy sources. These are science projects, and they fit the educational toy market needs, but more than that, it is fun to play with.

Key Features

Following the idea of "making toys educational, and making education fun", Gigo has successfully developed experimental equipment for schools. To teachers they appear to be "teaching aids", but for children it is time to play. By using gears, electricity, pneumatics and much much more, the classroom becomes highly interactive. In many schools today, Gigo is synonymous with science education.

Recently, STEAM as a learning concept became very popular, but Gigo was at the crest of this learning wave. The range of blocks and supporting components is vast, and for the higher levels includes complex projects like programmable robots, Bluetooth remote-control projects and even AI training. This is where 40 years of building, learning and playing has brought us. One of the most amazing things about Gigo, is how everything is compatible. Yes, all of it. For example, even the system for younger learners, with a few connectors is compatible with the S4A projects. This means that there is a very wide development and learning scope for learners.

Company Profile & Business Contact Information

Core Business	A various of building block products such as educational building blocks, math / science teaching aid, creative furniture, robots, etc.
Chairman of the board	Betty Wang
Address	7F., No. 406, Sec. 2, Taiwan Blvd., West Dist., Taichung City 403411, Taiwan (R.O.C.)
Tel	886-4-2320-3456
Fax	886-4-2320-3898
Website	www.gigotoys.com

LIN'S CERAMICS STUDIO

Business Philosophy

Tea sets and water is the origin of tea.

Reasons for Winning

Chinese Culture Promoter and the Leading Brand of Taiwanese Ceramic Tea Sets and Tea Lifestyles

LIN'S CERAMICS STUDIO adheres to the philosophy of "Tea ware and water — the origin of tea" and combines the glazing technique with creativity to tea wares to establish a complete tea ware series. The "Indigenious Imprint" tea ware series make good use of local soil, ore, plants, and broken tiles as materials to facilitate recycling and establish industries focusing on local features. To promote the industry-academia cooperation, LIN'S CERAMICS STUDIO invites experts to carry out scientific resesarch on the raw material, water, and tea. In addition, LIN'S CERAMICS STUDIO also introduces robotic arms to standardize and upgrade the manufacturing capacity.

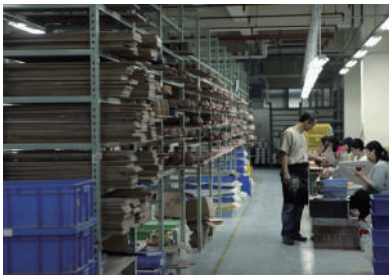
LIN'S CERAMICS STUDIO'S tea ware series is the first IF communication design award winner in the Chinese world. LIN'S CERAMICS STUDIO develops various series of tea wares and helps the Taiwanese ceramic industry enter the stage of mass production and distribution. Furthermore, LIN'S CERAMICS STUDIO's ceramic products passed 482 safety inspections. In 2018, LIN'S CERAMICS STUDIO founded Aurli, a brand focusing on combining tea wares with coffee, to obtain orders from Japanese market.

Key Features

LIN'S CERAMICS STUDIO is one of the few Made-in-Taiwan creative brands with outstanding ceramic crafting technology. Our business includes the integration of R&D, design, manufacturing, and sales channels. When LIN'S CERAMICS STUDIO was founded, we adhere to the philosophy of "Bring tea to life through design". We combine innovative tea ware design and tea experience with new materials. We hope to redefine "Tea" and make people's life better.

We proposed the concept of "Tea, Ware, People", "Tea wares first, then tea", and "Five tips to taste tea".

* During 2010 Shanghai World Expo, LIN'S CERAMICS STUDIO was in charge of the tea ceremony demonstration and serving tea at the Taiwan Pavilion.
* Tea Party 1 launched in 2012 and Tea Party 2 launched in 2015 won multiple awards.
* LIN'S CERAMICS STUDIO founded the sub-brand "Aurli" in 2018 and stepped into the market of coffee utensils. We cooperated with many coffee artisans and Hairo, a well-known coffee utensil brand, to develop high-end products.
* LIN'S CERAMICS STUDIO would celebrate the 40th anniversary in 2022. Our next goal is to take up the corporate social responsibility and contribute to the society.



Company Profile & Business Contact Information

Core Business	Ceramics and ceramic products manufacturing; tea wholesale; ceramic glassware wholesale and retail
Chairman of the board	Jung-Kuo Lin
Address	3F., No.4, Ln.56, Da'an St., Xizhi Dist., New Taipei City 22178, Taiwan(R.O.C.)
Tel	886 -2-8648-6106
Fax	886-2-8648-6105
Website	www.taurlia.com

國立虎尾科技大學
NATIONAL FORMOSA UNIVERSITY

National Formosa University , Smart Machinery and Intelligent Manufacturing Research Center

Business Philosophy

With the school motto-Honesty, Integity, Excellence, Diligence-National Formosa University (NFU) adopts a student-centered appraoch to nurture well-rounded professional talents.

Reasons for Winning

A Value Creator that Sticks to Four Innovation Strategies

(1) Establish a base for the development of domestic technologies and training of top talents.
(2) Cooperate with international companies, such as NK WORKS, and set up an industry-academia alliance as a platform for technology exchange.
(3) Develop key technologies for premium manufacturing systems.
(4) Hire local and foreign experts in the industry.

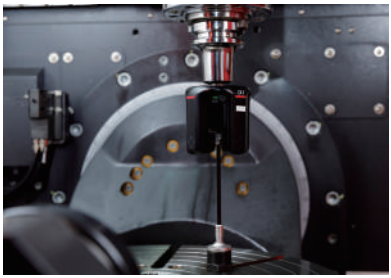
Smart Machinery and Intelligent Manufacturing Research Center has founded three start-up companies and launched 10 products, with a total investment of 210 million NTD and a total ouput value of 1.78 billion NTD. In the future, it will focus on the development of aerospace, turn-milling combination, and smart components, assisting the industry with technology innovation.

Key Features

Established in 2003 and restructured in 2018, Smart Machinery and Intelligent Manufacturing Research Center is the first-level administrative division of NFU. The center currently consists of 35 researchers and 30 teachers, managed by a company CEO, a specialized technicain from Japan, and a senior aerospace operator. It has cooperated with 50 companies, earned more than 60 million NTD from technology transfer and 50 million NTD from commissioned research.

Stratrgies, goals, and values:

(1) Establish a base for the development of domestic technologies and training of top talents.
(2) Cooperate with international companies, such as NK WORKS, and set up an industry-academia alliance as a platform for technology exchange.
(3) Develop key technologies for premium manufacturing systems.
(4) Hire local and foreign experts in the industry.



Company Profile & Business Contact Information

Core Business	Talent training, preparation of a technology exchange platform for industry-university-research alliances, development of key technology guidance and promotion, and supplementing key technologies of high-end manufacturing systems
Director of the Centre	Jing-Chung Shen
Address	No. 64, Wunhua Rd., Huwei Township, Yunlin County 632301, Taiwan (R.O.C.)
Tel	886-5-631-5401
Fax	886-5-631-5401
Website	www.nfu.edu.tw

工業技術研究院
Industrial Technology Research Institute

Industrial Technology Research Institute (ITRI)

Business Philosophy

Information and Communications Research Laboratories, ITRI applies advanced research results to industrial development,developing key technologies to increase the added value of products and enhance the competitiveness of Taiwan's industries, to create future prosperity of the ICT industry.

Reasons for Winning

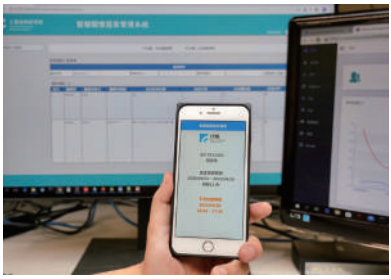
The Initiator of the 5G Small Cells Ecosystem and Unmanned Vehicle Industry Chain

Information and Communications Research Laboratories Industrial Technology Research Institute (ITRI), has developed innovative technologies to produce high-quality chips and consolidate the IC industry. The Labs develops cloud data management systems with domestic companies and enters overseas markets. It keeps promoting its cooperation with more companies while upgrading software and hardware.

The Labs has assisted in upgrading and transformation of Taiwan's information and communication industry, bringing together 18 upstream, midstream and downstream companies to build the ecosystem of 5G base stations. Moreover, it has also developed the key intelligent solutions for unmanned vehicles. Through the strategic partnership program, the Labs assist Taiwan's ICT industry to grasp business opportunities of safety systems and applications for self-driving vehicles. The Labs has already brought together 14 companies and cooperated with Mobiletron to develop Taiwan's first commercial self-driving electric bus. The project has connected the industry chain of self-driving buses in Taiwan and leveraged domestic development of the self-driving vehicle industry.

Key Features

Information and Communications Research Laboratories focuses on 5G communication technologies, autonomous driving and unmanned vehicles, AI chips and related applications, AIoT, and information security. The Labs spots industrial demands and provides solutions that integrate both software and hardware. It also promotes the integration of the entire industrial ecosystem, striving to enhance Taiwan's industrial competitiveness. In recent years, the Labs' has developed a wide range of technologies, including Power and Thermal-Aware Electronic System Level Platform, Automatic Police UAV Patrol System, Reconfigurable Array of Inexpensive Batteries Architecture (RAIBA), ITRI V2X System Solution (iRoadSafe), Personal Companion Robot for Older People Living Alone (PECOLA), and Non-Contact Monitoring of Breathing Pattern and Respiratory Rate. These innovative developments have won R&D 100 Awards, Edison Awards, and CES Innovation Awards. In addition, the Labs has also made a lot of effort in technology applications and marketing, brought more benefits to the domestic industries, and nurtured top talents and start-ups and promoted international business and strategic alliances. Its participation in international standard development organizations, e.g. 3GPP also yields fruitful results.



Company Profile & Business Contact Information

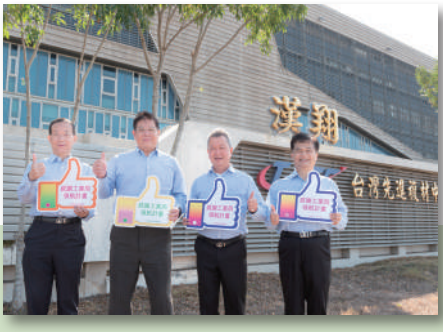
Core Business	The R&D and applications of 5G, AIoT, surrounding sensing systems, information security, and Ambient intelligence systems.
President	Edwin Liu
Address	No. 195, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 310401, Taiwan (R.O.C.)
Tel	886-3-582-0100
Website	www.itri.org.tw

Team Catagories

Innovative Trailblazer Team Award

Model of Local Industry Innovation Award

Industry Innovation Alliance Award



iAIDC Intelligent Manufacturing Team

Aerospace iAIDC Intelligent Manufacturing / Intelligent Management System

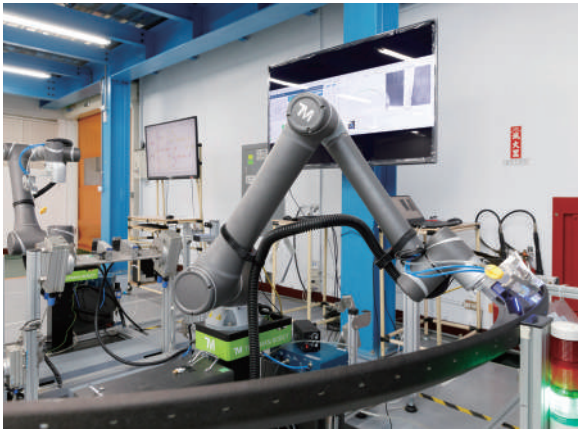
Reasons for Winning

The team employed manufacturing technology and expertise to develop an "intelligent AIDC system platform (iAIDC)" based on intelligent manufacturing. They developed a three-tier information flow scheduling system and a production flow line system, and carried out vertical and horizontal integration to promote intelligent manufacturing for the whole factory. And through the systematic and step-by-step integration of iIoT, big data, CPS, Robot and other production systems, they integrated various plant machines to form a iIoT, network; at the same time, they built a smart decision center to monitor the working status of all machines and the production status of all production lines in real time. They gradually reached the core values of early warning of problems, prevention of errors, and quality prediction. Combined with smart invention patents, they helped increase one production capacity by 1.6 times. Through the deepening of industrial intelligence, the team has increased the activation (utilization) rate of the production line by an average of 20%, and the overall cost has been reduced by 20%. They concretely implement the intelligent manufacturing of the aerospace industry chain to create opportunities for the transformation of intelligent machines, aerospace and composite materials.

Key Features

AIDC independently developed the iAIDC (intelligent AIDC), intelligent manufacturing/ intelligent management system platform, integrating iIoT, big data, CPS, Robot, industrial AI and other production systems to build a smart system platform based on intelligent manufacturing. From the three main categories of "intelligent machinery", "intelligent manufacturing" and "intelligent management", AIDC actively promotes intelligent manufacturing, and strives for effects, efficiency and flexible production. AIDC focuses on "intelligent real-time monitoring and predictive maintenance of machine tools" and "intelligent production and intelligent management of process, in line with the continuous promotion of lean manufacturing, it has been upgraded from "improvement of post-occurrence processing" to a new intelligent manufacturing model of "pre-warning, prevention, and prediction".

AIDC's "Three-steps of Intelligent Manufacturing ", the first is iAIDC, the second is the decision-making strategy center, and the third is iAI (industrial AI). Based on digitalization and intelligent manufacturing, it is expanded to introduce industrial Artificial Intelligence (iAI), to integrate the needs of different levels of the company and actively transforms from manufacturing AIDC to intelligent AIDC.



Words from the Team Leader

AIDC independently developed the iAIDC Intelligent Manufacturing/ Intelligent Management System, a unique "Three-steps of Intelligent Manufacturing ", the first is iAIDC, the second is the decision-making strategy center, and the third is iAI (industrial AI). On the basis of digitalization and intelligent manufacturing, we expanded the introduction of industrial Artificial Intelligence (iAI) to integrate the company's needs at different levels. We also actively transformed from manufacturing AIDC to intelligent AIDC. Let employees actively support and promote intelligent manufacturing and digital transformation to refine quality, efficiency and cost, and obtain the recognition from the outside and worldwide.

Company Profile & Business Contact Information

Organization	iAIDC Intelligent Manufacturing Team / Aerospace Industrial Development Corporation
Team Leader	Kai-hung Hu
Address	No. 1, Hanxiang Rd., Xitun Dist., Taichung City 407803, Taiwan (R.O.C.)
Tel	886-4-2702-0001
Fax	886-4-2284-2295
Website	www.aidc.com.tw

Taiwan Semiconductor Manufacturing Company Limited

Nano Patterning Technology Division

The development of global leading EUV technology for high volume production

Reasons for Winning

The team takes "Extreme Ultraviolet Photolithography (EUV) Technology" as the core of its research and development to provide customers with the world's top wafer manufacturing services. They have independently developed methods to increase the productivity and yield of EUV exposure machines, and used advanced mask technology and developed advanced materials and OPC mask correction technology to reduce exposure dosages. The team reached the state of art defect rate in EUV masks and wafers, thereby increasing the overall production capacity, leading the equipment and material-related supply chain, developing the new generation of lithography process technology, and creating new business opportunities. They continue to develop related materials that contain TSMC patents to ensure that the technology stays ahead. They also cooperate with system manufacturer customers to provide better chips and products. Moreover, they cultivate advanced lithography technical talents to lay the foundation for the domestic semiconductor industry. They ensured the leading position of TSMC's foundry in the world. Technological independence, rooted in Taiwan, they do their best for the country's economic development.

Key Features

TSMC Nano Patterning Technology Division team is responsible for the research and development and introduction of mass production of 7nm, 5nm, 3nm and 2nm lithography technologies to promote the continuous advancement of Moore's Law and provide customers with the world's top wafers manufacturing services. Following the immersion lithography technology, we have successfully developed extreme ultraviolet lithography (EUV) technology and lead the world in mass production successfully.

The team and ASML jointly developed EUV machines and improved machine accuracy and productivity, supplemented by self-developed processes, masks, and material technologies, enabling 7nm and 5nm chips to lead the world in mass production successfully. In the process of technology development, the team worked with a number of domestic manufacturers to jointly develop and promote the development of the semiconductor upstream and downstream industries. At least 12 local Taiwanese manufacturers and 10 global suppliers have grown thanks to EUV technology. We created a win-win and prosperous society with customers, suppliers, and consumers, and realize TSMC’s commitment to Taiwan’s technological leadership and economic development.

We will continue to innovate, enhance international competitiveness, cultivate outstanding talents and support domestic related industrial chains, so that our national semiconductor industry will continue to flourish !

Words from the Team Leader

The research and development of lithography technology is by no means to complete overnight. Only fundamentals and innovation can continuously overcome the challenges of process miniaturization. I am very happy that the team successfully introduced EUV into mass production.

Company Profile & Business Contact Information

Organization	Nano Patterning Technology Division / Taiwan Semiconductor Manufacturing Company Limited
Team Leader	Y.C. Ku / Chin-Kun Wang/ John Lin
Address	No. 168, Park Ave. 2, Hsinchu Science Park Hsinchu 300091, Taiwan, (R.O.C.)
Tel	886-3-563-6688
Fax	886-3-668-7827
Website	www.tsmc.com

Brain Navi Biotechnology Co., Ltd.

NaoTrac, the surgical navigation robot.

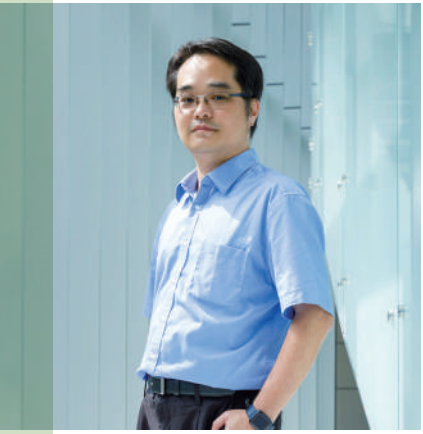
Reasons for Winning

The first brain surgical navigation robot is developed by Brain Navi team from Taiwan. Its patented SMART technology (Surface Mapping Auto Registration Technology) combines machine vision, algorithms technology and robotic technology to provide the ideal surgical pathway during the preoperative or during the surgery to improve the relationship between the doctors and patients. With the image-guided technology, it can provide "real-time" information during the surgery; embedded with robotic arm and algorithms, it can reduce the risk of surgical bleeding and reduce the injury to the nerves. The technology used by the team is non-contacted imaging guided technology to positioning surgical instruments, patients, and robots; all of the procedure is proceeded automatically and still under the control of the surgeons. This technology can enhance the creativity of the innovation and improve the medical quality of the country.

The team integrates cross-industrial resources with industry-university-research-medicine, strengthens the connection between academia and the industry, and jointly designs and develops image guidance technology to drive domestic manufacturers to implement product internationalization.

Key Features

Surgical navigation robot merges the preoperative medical images, such as CT/ MRI, to the robot system to procced the surgical pathway that designed by the surgeon before the surgery. The technology combines image-guided system, robotic positioning technology and algorithm system. The image-guided system includes the preoperative CT/MRI images for the surgeon to know the entire brain information, uses machine vision to obtain the patient's facial features for image merging and positioning. After calculating and matching, the robotic arm will proceed the surgical pathway under the control of the surgeon. The integration of this technology can provide the surgical information to the lesion of the patients. This interface is all integrate into our system of surgical navigation robot to proceed the surgical navigation. At the same time, during the operation, real-time image guidance and abnormal monitoring warnings are provided to help the surgeon obtain direct image positioning guidance of the surgical site in real time, and perform surgery more efficient, reliable, and safe.



Words from the Team Leader

Medical robots or surgical navigation robot act as the assistant to the doctors, to make the surgery performs better.

Brain Navi Biotechnology expects to create products that will streamline the surgical procedure, shorten the learning curve, and assist in communication between doctors and patients.

Company Profile & Business Contact Information

Organization	Brain Navi Biotechnology Co., Ltd. / BRAIN NAVI BIOTECHNOLOGY CO., LTD.
Team Leader	Chieh Hsiao Jerry Chen
Address	1F., No. 66-1, Shengyi 5th Rd., Zhubei City, Hsinchu County 302041, Taiwan (R.O.C.)
Tel	886-3-657-9438
Fax	886-3-668-2179
Website	https://brainnavi.com/

Research Center for Energy Technology and Strategy

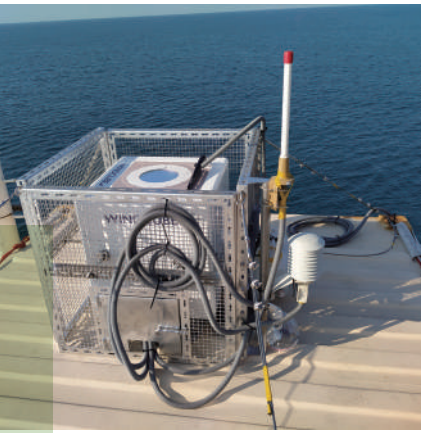
Multi-Integration and Industry-Academia Innovation of Green Energy Technologies

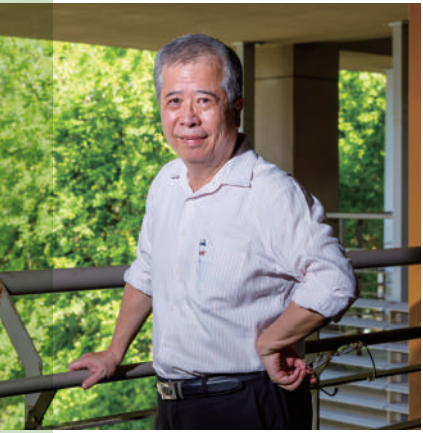
Reasons for Winning

The RCETS team is different from the traditional on-campus research centers. Their research and development strategy is mainly based on researchers' own collaboration accompanying with additional supports from on-campus professors; focusing research areas on "smart energy", "offshore wind power", "microalgae bio-energy", "multiple fuels", "composite building" and "energy strategy", etc.; and emphasizing the "diversified integration" features of green energy technology at the practical industrial application level. They gradually establish a green building materials industry alliance, a "multi-fuel energy saving and emission reduction" R&D team, and cooperate with the Architecture and Building Research Institute of the Ministry of the Interior and the Industrial Technology Research Institute to establish Taiwan's most complete testing and R&D team on green and fire-resistant building materials performance.They have won the "Business Angel Investment Program" of the Executive Yuan to establish of "ABIS Aerogel Co., Ltd.". The team promotes the implementation of the "Taiwan Offshore Wind Power Pilot Project" to facilitate the development and establishment of Taiwan's offshore wind power, industrial development and research development. They lead Taiwan's green building materials industry chain towards internationalization.

Key Features

The Research Center for Energy Technology and Strategy (RCETS) at the National Cheng Kung University was established in 2008, and had grown under the "Aim for Top Tier University" project from the Ministry of Education in 2011-2016. Since 2017, RCETS has adjusted its R&D mechanism and strategy to move towards the goal of independent operation and sustainable development; and has promoted six key research fields, such as smart grid, offshore wind power, microalgae bio-energy, multi-fuel, composite building and energy strategy, showing the "multi-integration" feature required by green energy technology in the industrial application level. At the same time, the innovation strategy has adjusted to focus on "the implementation of innovative R&D to industrial applications"; such that in view of the features and needs of the energy industry, it has been carried out through five promotional services, such as scientific research planning, talent cultivation, verification and guidance, international collaboration, and local practice. In the recent three years, RCETS has focused on innovative key areas such as composite functional architecture design, multi-fuel energy saving and emission reduction, observation and operation of offshore wind farm; and has developed the industry-academia alliances to improve the cooperation relationship; and has set up the joint R&D centers to assist manufacturers in technology import, product and market development. Each year, RCETS had self-financing research funds more than NT$130 million, showing the plentiful R&D strength of RCETS, and the independent operating performance brought about by innovative strategies.





Words from the Team Leader

We receive grace in opportunities, we work hard in challenges, and we have tomorrow because we stand firm today.

Company Profile & Business Contact Information

Organization	Research Center for Energy Technology and Strategy / National Cheng Kung University
Team Leader	Ta-Hui Lin
Address	No. 1, Daxue Rd., East Dist., Tainan City 70101, Taiwan (R.O.C.)
Tel	886-6-208-4731
Fax	886-6-209-5913
Website	http://cets.ncku.edu.tw/

Service Systems Technology Center, Industrial Technology Research Institute

AIoT driven innovative services and upgrades in the logistics and warehousing industry

Reasons for Winning

With the commercial value of creating "service-oriented logistics and warehousing industry", the team has built Asia's first smart logistics and warehousing system and center, promoted the development of large-scale smart logistics park bases in our country, and strengthened the physical system of the industry and the innovation of value-added business services.

The team grasps the characteristics of Taiwan's industrial needs and the limited urban space and short-term delivery. It can develop a more sophisticated and three-dimensional intelligent warehousing logistics system than Europe and the United States. It also operates a Key Account, established a model of smart warehousing in Asia, and obtained a leading position in Taiwan's smart logistics and warehousing technology. It promotes industrial cooperation and builds the national team of to implement domestic solutions overseas, helping Taiwanese businessmen to strengthen their international competitiveness.

Being a leader in the research and development of cold chain logistics and warehousing technology, it created a B2C smart cold chain logistics and warehousing solution, helping Taiwan's cold chain logistics and warehousing companies to expand their logistics and warehousing business, and promote Taiwan's product export industry to make it more technological, service-oriented and international.

Key Features

In response to various factors such as urban economy and technological wars, pandemic, and trade wars, the subject of this selection is the "new generation of smart logistics warehousing systems and solutions" driven by high-precision, high-efficiency, and high-density AIoT combined with IoT, AI, and automation. A number of localized logistics and warehousing intelligent technology solutions that connect "technical trends" and "market demands" substitute solutions of import, reduce construction costs, and replicate and spread, fully transforming and upgrading the logistics and warehousing industry. And from technological innovation to service innovation, we shape various innovative application services (End to End Solution), and promote the development of technology, service and internationalization of the logistics and warehousing industry.

Words from the Team Leader

The world is changing, and the pace of research and development cannot be stopped. We have precise insights into market demand and make science and technology more down-to-earth!

Company Profile & Business Contact Information

Organization	Service Systems Technology Center, Industrial Technology Research Institute / Industrial Technology Research Institute (ITRI)
Team Leader	Janet Chen
Address	Rm. 233, Bldg. 52, No. 195, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31040, Taiwan (R.O.C.)
Tel	886-3-591-3412
Fax	886-3-582-7714
Website	www.itri.org.tw

Niulan River culture limited company

The book exchange bank platform

Reasons for Winning

The team promotes the "organic bookstore", promotes reading by exchanging books, deepens the local reading culture, and uses reading promotion methods to convey the inner spirit of reading and construct a dialogue bookstore for humanistic exchanges. With Shidianzi Old Street as a cultural brand, they built a "persistent local cultural life experience field" to promote local tourism, guide the public to care about the local community story and develop local life aesthetics and take root in the local community to encourage local residents to identify with their own culture. The team built a "good book exchange bank", recruiting good book exchange members to reduce the cost of heavy book purchase, and connected 10 organic bookstores across Taiwan to form a book-for-night travel method, and developed into a membership type, shaping travel experience opportunities. They have also launched an organic bookstore App and form alliances with different industries to expand their brand, attracting more people to enjoy reading life together.

Key Features

The brand of "Organic Bookstore" has been expanded for more than six years. There are currently ten bases in Taiwan. We choose to settle in rural areas. Through the bookstores, we can initiate the connection between local communities and residents; and through "book exchange", we build a relationship between people and gradually establish a business model for local cultural creative industry. "Organic" means that a seed will continue to sprout and grow. We use the way of exchanging books to promote reading, deepen the local reading culture, and construct a dialogue bookstore for humanistic exchanges.

At the same time, through the combination with community development, people are regarded as the protagonists of this bookstore, and the space is reactivated in the current environment. We develop independent bookstores and add all kinds of arts and cultural elements through various local connection methods to transform value-added local specialty industries, including arts and cultural value-added industries, value-added local specialty industries, and revitalizing and operating rural arts and cultural spaces, etc. It can not only increase individual or group art and cultural micro-management energy, but also activate the local economy of the villages.

Words from the Team Leader

Organic bookstores do not sell books, but promote reading by exchanging books.

This will be an organic bookstore that continues to grow and change and become the cultural landscape of the town

Company Profile & Business Contact Information

Organization	Niulan River culture limited companys
Team Leader	Ben Lu
Address	No. 69, Zhongzheng Rd., Guanxi Township, Hsinchu County 306001 , Taiwan (R.O.C.)
Tel	886-3587-2792
Website	https://69bookstore.mystrikingly.com/

Ford Lio Ho Motor Company

The Team of Automotive Smart Manufacturing

Automotive Smart Manufacturing

Reasons for Winning

The team established a model for vehicle smart manufacturing, introduced international automation technology in three years, and established smart production line with domestic partners. Different vehicle models can be switched to production within 30 seconds, and there can be 4 different models in the same production line. Smart robots are used to build a flexible body production line, creating the first domestic multi-model fast switching flexible body production line. They have established a smart and flexible production line for quick change of models to meet small and diverse market demands. The team used the applications of sensors, Internet of Things environment, remote monitoring, integrated monitoring system through big data analysis to improve production and management efficiency. They also cultivate local system manufacturers, lead the supply chain to carry out intelligent machine upgrades, process innovation and the benefits of industrial upgrading, and enhance the ability of intelligent machinery to drive the sustainable development across Ford supply chain systems in Taiwan.

Key Features

This project considers the needs of the Taiwan market, develops a smart manufacturing upgrade program suitable for the domestic environment, and verifies the overall results with the introduction of Ford Lio Ho's new models. It utilizes smart robots to construct flexible body production line, and mix model production to meet the diversified demand of the market. It also adds smart manufacturing elements into the production line by using IoT technology, collecting the data of key production equipment in real time, performing big data analysis, to make the production line smarter and more efficient. It combines the strength of the government, academic, and industry to integrate manufacturers, jointly creating a model of smart manufacturing in the automotive industry and is recognized by the Industrial Bureau as a demonstration field for “smart automotive manufacturing”. At the same time, Ford Lio Ho shares the smart manufacturing achievements to the industry, academic and government through industrial seminars, plant visits, conferences and automotive exhibition.

Words from the Team Leader

Innovation is the courage to try something that others have not done before.

We try our best to discuss the possibility of realization for every original idea and put it into action to meet the rapidly changing demands of the market.

Company Profile & Business Contact Information

Organization	The Team of Automotive Smart Manufacturing / Ford Lio Ho Motor Company
Team Leader	Mario Hu
Address	No.705, Sec. 1, Zhonghua Rd., Zhongli Dist., Taoyuan City 32068, Taiwan (R.O.C.)
Tel	886-3-453-0227
Fax	886-3-463-5004
Website	www.ford.com.tw

The Team of Financial Technology Innovative Service

Innovative Application of Blockchain—The digitalized Bank Confirmation

Reasons for Winning

The team is the first one to implement blockchain technology in the financial transaction practice. They used the feature of blockchain technology that makes the transaction undeniable and not easy to tamper, so that firms and responding banks can reduce the disadvantages of inefficiency and fraud of paper-based operations in the past. Therefore, it can improve audit quality and efficiency, promote information transparency of capital market, greatly reduce the operating time and improve data security. It has a revolutionary impact on the audit process. The team's implementation of blockchain technology in financial transaction services has changed the external confirmation procedures that relied on paper operations in the past decades. It can reduce the labor cost of processing a large number of confirmations and create new business for banks to use this service and increase the profitability of banks. It enhances the transparency of financial statements and protects the rights and interests of investors, which is of great help in promoting the vigorous development of the capital market of our country.

Key Features

The origin of the financial blockchain confirmation is to quicken the speed and correctness of the response of the bank confirmation in Taiwan. At the initial promotion, the format of confirmation was different among parties. Therefore, the Accounting Research and Development Foundation adopted Auditing Standards Bulletin No. 69 "External Confirmation" and Extensible Business Reporting Language (XBRL) to unify bank confirmation format. In 2018, the financial Information Service Company employed the blockchain technology to this system, making the financial blockchain confirmation widely used by various types of enterprises. So far, more than 40,000 companies have used this service.

The financial blockchain confirmation uses blockchain technology, and combines digital certificates and digital signatures to digitize bank confirmation operations. In this way, after paper work is digitized, in addition to greatly shortening work time, reducing human error, and improving work efficiency, the blockchain's decentralization and non-tampering characteristics can reduce the risk of fraud. This will help improve the disclosure quality, creating transparency of SME financial statements in our country. Morever, if the CPA firms and the responding banks use the Application Programming Interface (API) to interface with the bank's confirmation system, it can also reduce the problem of repeated data input and errors, which will definitely help the rapid response of information.

The financial blockchain confirmation is the first service to implement blockchain technology in financial transactions in our country, and has been affirmed by professional institutions at home and abroad for many times. On the whole, the financial blockchain confirmation is of great help to the transparency of capital market information, environmental protection, and manpower saving. The financial technology innovation service team continues to develop new projects and new functions, and it is believed that this technology can also be applied in other fields in the near future.

Cooperating Organization

Financial Information Service Co., LTD

Words from the Team Leader

The financial technology innovation service team makes good use of the financial technology and accounting expertise. It drastically shortened the bank confirmation time from the traditional work of about 14 days or more to 0.5 to 3 days, and the benefits generated are specific and clear. The financial blockchain confirmation is a good example of digital operations, and it can specifically reduce unnecessary contact between people. It is a high-quality financial technology application in the era of technology and epidemic prevention.

Company Profile & Business Contact Information

Organization	The Team of Financial Technology Innovative Service / Accounting Research and Development Foundation / Financial Information Service Co., LTD
Team Leader	Doris, Yi-Hsin Wang / Kuo-Liang Lin
Address	20F., No. 17, Sec. 1, Chengde Rd., Datong Dist., Taipei City 10351 , Taiwan (R.O.C.)
Tel	886-2-2549-0549
Fax	886-2-2549-0634
Website	www.ardf.org.tw / www.fisc.com.tw

The Team of Science and Technology of Agriculture Innovation

Innovative development model of characteristic industrial ecosystem in southern Taiwan of indigenous communities.

Reasons for Winning

The team introduced "smart monitoring and ecological material technology", used "ecological health management technology", "Multiple pressure extraction technology" and "composite probiotic technology" to promote agricultural transformation and used " Biomass save carbonization technology " for diversified utilization and developing derivative products to achieve zero-waste, green and circular economy effects, and drive overall development. The team also cooperated with the local government to establish the first Pingtung aboriginal characteristic agricultural promotion association, and introduced new business models such as the " Recycling material production and smart monitoring system " to carry out cross-disciplinary innovation and connect local industries. The team integrates academic and research technology to promote group counseling, uses technology production to manage the quality of the materials, and generates the leader to drive the industry. Drive the development of the overall industry through organizations and leaders, and introduce the resources of the Ministry of Labor's training plan to train young people, and link the surrounding industrial ecosystems to enhance employment opportunities in the aboriginal tribe and reduce the emigration of young people, to facilitate the local agriculture creation and the local economy.

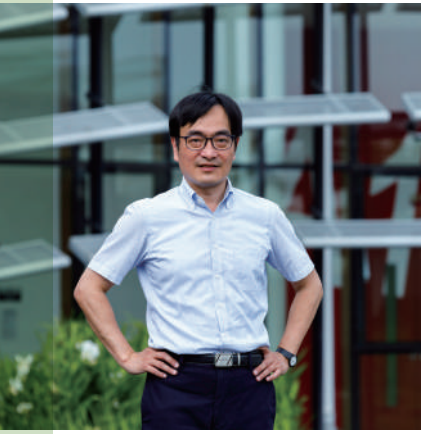
Key Features

The team employs smart ecological technology to combine the traditional agricultural food of the indigenous tribes, adopts a six-level industrial model to link surrounding cross-sector manufacturers to form an industrial ecosystem, and promotes inter-ministerial energy to assist in the subsequent cultivation of local talents, as well as the cognitive education of traditional crop for elementary school students. It provides opportunities and contributions for cross-disciplinary economic activity while awakening traditional farming culture. The model of "Setting up the stage with technology and singing cultural opera" has become an important method of promoting innovation and creation in rural areas.

The team Uses Taiwan quinoa, native lily and coffee as vehicles from introducing smart agriculture and ecological materials technology in the demonstration field, establishing characteristic brands, to implementing the establishment of indigenous farmers' associations, indigenous youth enterprises, and common O2O marketing platforms. With high-value materials and the steady-state supply mode of quality between large factories, it successfully escaped from traditional raw material sales and quickly increased the economic power of the aboriginal town. In the end, it connected cultural tourism through Pingtung County Government and became an important innovation model for the local creation of the southern aboriginal town.

Cooperating Organization

Department of Indigenous Peoples, Pingtung County Government.



Words from the Team Leader

Quickly organizing suitable cross-disciplinary technical capabilities under the cultural foundation and implementing the innovative model of industrial ecosystem approach structure is the best thinking to assist the rural economy.

Company Profile & Business Contact Information

Organization	The Team of Science and Technology of Agriculture Innovation / ICRC / Industrial Technology Research Institute
Team Leader	Shih-Chi Lee
Address	No. 195, Sec. 4, Chung hsing Rd., Chutung, Hsinchu County 310401, Taiwan (R.O.C.)
Tel	886-49-234-5358
Fax	886-49-234-5679
Website	www.itri.org.tw

Penghu Place Making Development Association

Penghu Longmen Back Bay Beaches Cleaning-up and Creating Cultural Project

Reasons for Winning

The team adopts the "beach cleaning" and "cultural and creative regeneration" of Penghu Longmen Back Bay as their core target. Through the beach cleaning activities of the marine debris that blow in every winter, the marine debris is regenerated into artistic products, forming "the happy fish of marine debris" as their innovative entrepreneurship. At the same time, the totem design and color expression of the painted sea float "Happy Fish" and the large and small floating balls incorporate classical and innovation in order to preserve the heritage of ancient culture and art. By driving the beach and sea drifting activities, the team designed colorful totem products, combined with the colors of natural gems and different designs to activate the local economy. It also counsels companies to improve their operating models, and jointly develops new products and services with major cultural companies and universities and colleges. It organizes new craft talent cultivation and other related education and training, designs hand-made sightseeing experience camps, guides industry players to establish and develops new craft exchange platforms and overseas exhibitions, creates employment opportunities for young people to return to their hometowns, to promote the co-prosperity of local industries.

Key Features

In 2014, Penghu County was officially awarded as a member of Most Beautiful Bays in the World, MBBW, and Penghu represents the world-class scenery for all the tourists from the world.

However, behind this beautiful scenery and achievement, Penghu Bay was accumulated with massive trash, and Marine pollution has become a serious issue in recent years.

PPDA intends to solve the problem of marine debris by promoting a marine education project. They hope to help the local residents and the elderly people in the village from Penghu throgh this project. Village Head, Mr. Hong Zei-Da continuously leads the village people to clean up the beaches together for Back Bay. The artwork“Lucky Fish Leaping Over the Longmen Gate” made by village people was created from marine debris raised everyone's attention to marine environmental education.

PPDA hopes that through cross-industry cooperation with various societies and schools at all level, everyone can understand and love the ocean. The Penghu Longmen (Back Bay Clean-up and Cultural Creative) Project hopes to protect the precious marine ecology of Penghu County with all its strength, and to arouse people's awareness and action to protect the marine environment, and to gather everyone's strength to protect the ocean together and love our beautiful earth.

Cooperating Organization

Penghu Huxi County Longmen Village Development Association

Words from the Team Leader

Love the earth, save the ocean, environmental education, and turn marine debris into gold!

Company Profile & Business Contact Information

Organization	Penghu Place Making Development Association
Team Leader	Pearl, Victoria Lu
Address	6F., No. 90, Sec. 3, Nanjing E. Rd., Zhongshan Dist., Taipei City 10489, Taiwan (R.O.C.)
Tel	886-2-2506-5636
Fax	886-2-2506-1551
Website	Facebook：zh-tw.facebook.com/luperla.ccc/ E-mail：luperlatw@gmail.com

AI on Chip Taiwan Alliance (AITA)

AI on Chip Taiwan Alliance (AITA)

Reasons for Winning

[AI on Chip Taiwan Alliance (AITA)]

The team has established a high-quality development environment for Taiwan's AI chip industry. In response to the small number and diverse characteristics of AI products, they have jointly formulated a common interface for system software, a common platform for AI chip design, and a common interface specification for heterogeneous integration, providing rapid customization for domestic AI chip companies and differentiated solutions.

They also set up a system application flagship team to build up a demonstration AI chip system, used smart cameras to provide real-time warnings in case of lane and platform hazards. Moreover, they quickly established software and hardware integration solutions from training to implementation, drive system integration applications, modules, and chip companies to enter the field and develop more AI application services to facilitate the maintenance of operators.

The team expanded investment from well-known international manufacturers in Taiwan and prompted Synopsys Co. Ltd., the world's largest electronic design automation (EDA) software company, to establish a R&D center in Taiwan. The Ministry of Economic Affairs subsidizes companies to invest in the research and development of key technologies of AI chip and vertical applications, allowing Taiwan to advance its economic and industrial status.

Key Features

The world is rushing for artificial intelligence business opportunities. AI chips will play the role of the core brain and will be a key component of future smart devices. It is also the new opportunities of next wave that people from all industries are optimistic about in Taiwan's semiconductor industry. To this end, under the guidance of the Board of Science and Technology, the Executive Yuan and the Ministry of Economic Affairs, industry, university and research institutions jointly launched the "AI on Chip Taiwan Alliance, AITA" (pronunciation similar to "Love Taiwan Alliance") on July 2, 2019. The members of the alliance have multiplied since its establishment. More than 134 semiconductor design, manufacturing, packaging and testing, software and ICT system companies have promoted the development of AI chip and industry of our country. It is the most indicative AI chip industry technology exchange platform in Taiwan. And on November 26 of that year, four key technical committees were established: "AI System Application", "Heterogeneous AI Chip Integration", "Emerging Computing Architecture AI Chip", and "AI System Software". The first 4 technical specifications for Taiwan's AI chip industry are expected to help the industry reduce the research and development costs of AI chips by 10 times, shorten the development time of AI chips by more than 6 months, increase the performance of AI chips by 2 times, and establish proprietary independent patents. In the future, it will jointly build an AI ecosystem, develop key technologies, accelerate product development, and accomplish the strategic distribution of AI chips at full speed.

Cooperating Organization

134 AITA members including ASE, Etron, ITRI, Mediatek, Realtek, Skymizer, Sunplus, etc.

Words from the Team Leader

Exerting the strengths of Taiwan's semiconductors and move toward a technological wonderland through AI chips.

Company Profile & Business Contact Information

Organization	AI on Chip Taiwan Alliance (AITA) / Industrial Technology Research Institute (ITRI)
Team Leader	Nicky Lu
Address	10F., No. 22, Ln. 35, Jihu Rd., Neihu Dist., Taipei City 114754 , Taiwan (R.O.C.)
Tel	886-3-591-7860
Fax	886-3-582-0023
Website	www.aita.org.tw

Unimicron
欣興電子 **Unimicron Technology Corp.**

Panel-level Fan-out Development Cross-Industry Innovation Alliance

Solutions to Panel-level Fan-out in Ultra Fine Line (2μm/2μm)

Reasons for Winning

The innovative alliance coordinates the domestic supply chains into the cross-industry alliance among advanced equipment and materials. It comes out the solution to the fine line development and low manufacturing defect rate. The results can be combined with the existing technologies to form a high-performance hybrid substrate and applied in high-end products. Based on the new technologies and intellectual property portfolio, the alliance has increased the added value of products, and also inspired two major domestic display suppliers to start up the technology development for new business applications. Unimicron Technology Corp. completed the development of panel-level multi-layer redistribution layer (RDL) in 2μm-resolution, which has attracted leading clients and co-invested in the next-generation factory. The team built up the smart manufacturing semiconductor-like Fab, and promoted the localization of materials and equipment. It enhanced the technical capabilities of the existing IC carrier industry, and integrated the display-related line and semiconductor bumping technology to establish the panel-level packaging infrastructure. That is, the team makes Taiwan's PCB industry play the most important role in the world.

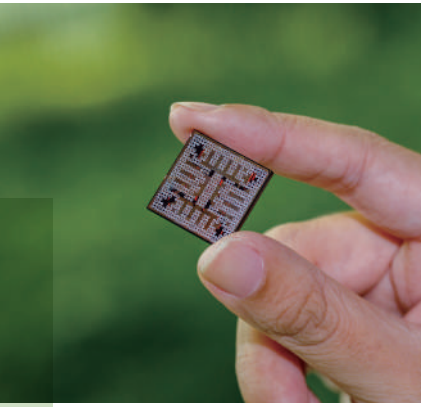
Key Features

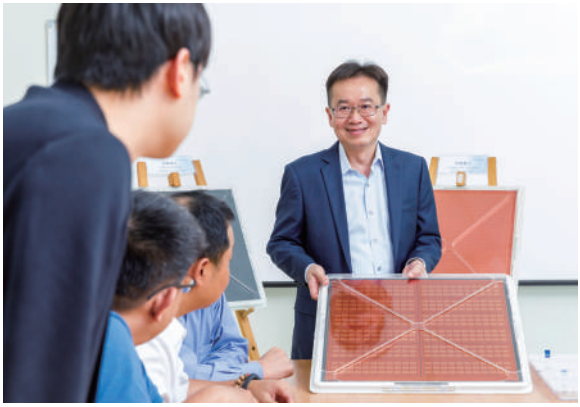
Unimicron Technology Corp. continues to evolve the next generation of IC carrier by organizing this innovative R&D alliance, establishing the first 510mm x 515mm panel-level production line, and accompanying domestic equipment and material manufacturers to complete the localization of infrastructure. The total investment is up to NTD 1 billion in R&D resources to aim on AP, Networking and Micro-LED application markets. It enhances the irreplaceability in the entire industry chain, creates high-added value devices, and upholds Taiwan’s PCB industry leading position in the world.

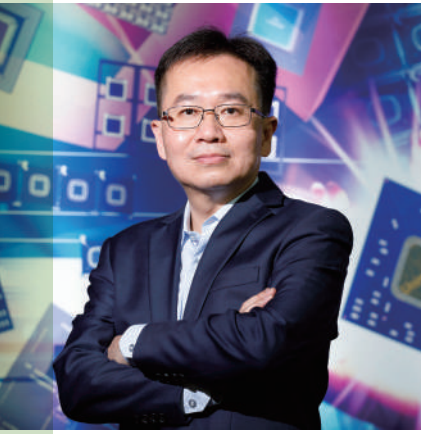
The alliance gets involved in 4 equipment vendors, 2 material vendors, 2 academic research centers, and 2 research institutes. It provides the cross-disciplinary cooperation opportunities to develop Panel-level Fan-Out in ultra-fine line (2μm/2μm) technology. By the close cooperation, the alliance has shortened the original development plan from 3 to 2.5 years and resulted in the achievements on various applications. To enhance the technical independency, the alliance drives industrial upgrade, strengthens domestic equipment self-sufficiency, and then overcomes the globalization challenges together.

Cooperating Organization

Gallant Precision Machining Co., Ltd (GPM) / Kingyoup Enterprises Co., Ltd(KY), / Gallant Micro. Machining CO., Ltd (GMM) FAVITE INC. (FAVITE) / National Chiao Tung University (NCTU) / National Taiwan University of Science and Technology (NTUST)
Electronic and Optoelectronic System Research Laboratories,ITRI / Mechanical and Mechatronics Systems Research Laboratories,ITRI







Words from the Team Leader

We fight an excellent uphill technical battle by cooperating with the cross-industry experts and coordinating the resources within the entire supply chain. Cohesion produces strength and unity gives birth to hope!

Company Profile & Business Contact Information

Organization	Panel-level Fan-out Development Cross-Industry Innovation Alliance / Unimicron Technology Corp.
Team Leader	Yu-Hua Chen
Address	No. 290, Zhonglun, Xinfeng Township, Hsinchu County 304151, Taiwan (R.O.C.)
Tel	886-3-599-5899
Website	www.unimicron.com

TRUST Poultry

Traceability Poultry Supply Chain Management Alliance

Reasons for Winning

In order to link Yunlin's local chicken industry, the team is committed to developing a "service cloud farm management system", building a supply chain traceability management platform, connecting the information and traceability of upper, middle and lower manufacturers, and providing a simple management system of agricultural product supply chains under the cloud platform: Establish a management system that corresponds to TGAP. After each trader performs management operations, the system automatically publishes various footprints on the Internet, without the need for the trader to record and type, to provide consumers with reliable quality and safety information. The team takes "smart management", "smart production", "smart life", and "smart ecology" as the main axis of agricultural research and development, adding information AI technology and smart management technology, and using innovative free-range chicken sales models to enhance the industry level and form an innovative business model, break through the bottleneck of the fragmentation of traditional operation information, and establish an operation model with high output value, which can be modularized and reduplicated.

Key Features

The annual output value of Taiwan's broiler industry occupies the second place in a single agricultural product, and is an important staple industry. From breeding to selling, the process of chicken production can be completed through the supply chain cooperation formed by multiple manufacturers. Although food safety is the focus of management, most manufacturers still use manual management. Although some manufacturers are information-based, their data is stored in different files, which makes it difficult to connect upstream, midstream, and downstream products. The alliance establishes a traceability management platform for the supply chain of the chicken industry. Through the alliance to link an industry-university-research cross-disciplinary cooperation team, it formed an innovative business model to break the bottleneck of information fragmentation of traditional operation, upgrade the industry and establish an operation model with high output value, which can be modularized and reduplicated.

Cooperating Organization

Leadray Limited Company / INNOSOFT CORPORATION / 橙心農業 / Tunghai University / National Chung Hsing University / National Chiayi University

Words from the Team Leader

Integrate for the sake of common good, innovate for the sake of sharing, and practice for the sake of common prosperity.

Company Profile & Business Contact Information

Organization	National Yunlin University of Science and Technology
Team Leader	Chwen-Tzeng Su
Address	No. 123, Sec. 3, University Rd., Douliu City, Yunlin County 64002, Taiwan (R.O.C.)
Tel	886-5-534-2601
Fax	886-5-537-5846
Website	www.yuntech.edu.tw

Individual Catagories

Innovative Elite Award (General Individual Group)

Innovative Elite Award (Woman Group)

Innovative Elite Award (Youth Group)

Industry-Academia Collaboration Award

Hsien-Kuang Lin
Industrial Technology Research Institute / Material and Chemical Research Laboratories

Business Philosophy

When doing research, I must keep social responsibility in my heart. It is my insistence. It used to be, and it will be in the future.

Hsien-Kuang Lin,
Chief Technology Officer

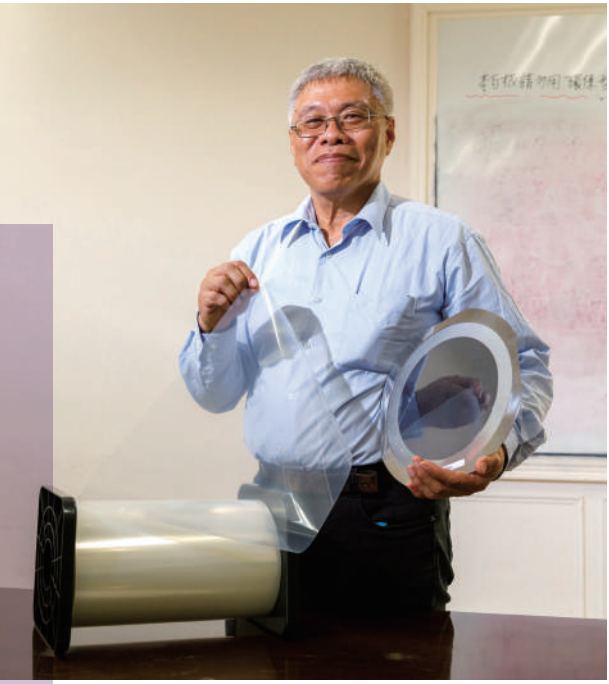
Reasons for Winning

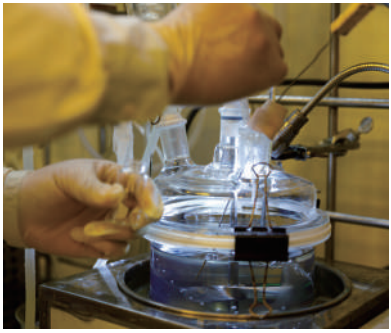
Hsien-Kuang Lin focuses on the development and application of formaldehyde-free environmentally friendly adhesives to reduce the risk of cancer due to wooden furniture and decoration. He actively distributes patent applications (2 patents, 9 cases), including patents in Taiwan, the United States, Japan, Europe, and China. Successfully promoted two start-up companies, he was engaged in the manufacture of adhesive materials, completed the technology transfer of aldehyde-free adhesive materials and application verification in multiple fields, and obtained international furniture product certifications such as IKEA and Nitori. This technology also won Gold Medal of 2019 Outstanding Research Award ITRI and Gold Medal at 2020 New York Edison Award.

Lin has served in the Industrial Technology Research Institute for 33 years. He has led the development of 23 new material products, applied for 30 patents, 23 papers, and 50 technical reports. With his special environmental protection materials, He attracted many international companies to cooperate with Taiwanese companies. This has a profound impact on domestic and foreign industries as well as the environment and human health.

Resume

(1)Education	Ph.D. in National Tsing Hua University (1992-2000) M.S. in National Cheng Kuang University (1985-1987) B.S. in National Cheng Kuang University (1981-1985)
(2)Experience	CTO, ITRI/ MCL (2021-Present) Director, ITRI/ MCL (2016-2021) Deputy Director, ITRI/ MCL (2003-2015) Seiner Researcher/ Projector Manger, ITRI/ MCL (1996-2002) Researcher, ITRI/ MCL (1991-1995) Associate Researcher, ITRI/ MCL (1987-1991)
(3)Awards	Edison Award Gold, 2020 ITRI Excellent Research Award Gold, 2019





Acceptance Speech

I am very happy that I can participate in this award which encourages industrial innovation in our country, and I am also grateful to the chiefs of the Industrial Technology Research Institute for their affirmation and recommendation.

During my 34 years of service at the ITRI, I have led the research and development of polymer materials in the optoelectronic/electronic industries such as printed circuit boards, LCD, OLED, micro LED, and semiconductors, and also developed various new products in the field of adhesives. It was my original intention to discover the mystery of materials and to assist domestic manufacturers in establishing the production capacity of advanced materials. From parts, components, elements, modules and even systems and materials are the foundation, and they are most likely to become the bottleneck of industrial development. I will continue to use the material technology and experience accumulated in the ITRI to assist various industries in the development of new products.

Seeing the young colleagues are busy going in and out every day in laboratory of the Institute of Material and Chemical Science, I know their experiences are accumulated little by little. I hope that every material researcher can find an industry that he or she is interested in, and he can make use of it. If you stick to it, you will surely see the results.

Jack, Yu-Chuan Li
Graduate Institute of Biomedical Informatics
Taipei Medical University

Business Philosophy

A research subject worthy of long-term focus has three high indicators: high value, high innovation and high feasibility.

Jack, Yu-Chuan Li,
Distinguished Professor

Reasons for Winning

Jack, Yu-Chuan Li has vigorously advocated the development of electronic medical records in Taiwan since 1995, and he has been an important promoter of electronic medical records exchange and Taiwan's medical information. He introduced the Learning Health System (LHS) into clinical practice. He founded DermAI and launched the "MoleMe" system, which uses AI to make accurate disease prediction, combined with cloud system real-time computing and feedback, to detect cancer risks early. He also completes the training of the top ten cancer risk prediction models, and is undergoing clinical and industrial verification.

Li actively promotes AI, applies artificial intelligence and machine learning to the early detection and precise prevention of diseases, and accelerates the transformation of Taiwan's medical information industry. In the past 30 years, his has more than one hundred industry-university cooperation projects, and he has cultivated more than 500 cross-disciplinary talents. He is also the first Taiwanese chairman of IMIA (International Medical Information Association) recognized by WHO. He promoted start-up companies and had fruitful performance and opened a new prospect for smart healthcare.

Resume

(1)Education	Ph.D., Medical Informatics, University of Utah School of Medicine (1991-1994) M.D., Medicine, Taipei Medical University (1984-1991)
(2)Experience	Committee of Smart Medical Device, Taiwan Food and Drug Administration Committee member, (2021-2022) BMJ Health & Care Informatics Journal (SCI), Editor-in-Chief (2020 -Present) International Medical Informatics Association (IMIA), President (2021-2023) TMU Research Center for Artificial Intelligence in Medicine, Vice Director/CEO (2018-Present) Graduate Institute of Medical Informatics, Taipei Medical University, Distinguished Professor,(2016-Present) International Center for Health Information Technology (ICHIT), College of Medical Science, TMU, Chief (2015-Present)
(3)Awards	Inaugural Fellow, International Academy of Health Sciences Informatics (IAHSI), IMIA, 2017 Outstanding I.T. Elite Award, 2015 Elective Fellow, Australian College of Health Informatics (ACHI), 2010 Elective Fellow, American College of Medical Informatics (ACMI), 2010 Junior Chamber International The 39th Ten Outstanding Young Persons, 2001

Acceptance Speech

Thanks to the recognition of the National Industrial Innovation Award from the Ministry of Economic Affairs. This is not only my personal honor, but also an affirmation to all the colleagues who have worked together along the way. Fortunately, in the past 30 years, I have had the opportunity to participate in the transformation of Taiwan's medical industry into information, technology, and artificial intelligence. Each stage is a gathering of people's wisdom, not just the contribution of a certain person. The covid19 pandemic has made us realize that the medical industry is the foundation of the country. Only by stabilizing the medical industry can the economy and society operate normally; it also allows us to see that there is nothing that cannot be broken in the past. The digital transformation in the post-epidemic era has just begun. The future is full of challenges and unlimited opportunities. I hope that we can develop more friendly medical information technologies to help improve people's healthcare and well-being.

Julian, Tsung-Sheng Liu
Yuanta Securitues Investment Trust Co., Ltd.

Business Philosophy

Deeply cultivate Taiwan, integrate with the world, combine intelligence, and introduce ESG, so that Taiwan's asset management will move towards a new milestone.

Julian, Tsung-Sheng Liu,
Chairman

Reasons for Winning

Julian, Tsung-Sheng Liu is the leader of Asia's innovative ETFs, who activated Taiwan's capital market. He not only created new business opportunities for the securities industry and futures industry, but also the first technology export to Southeast Asia. He introduced AI to fully integrate asset management to improve the efficiency of asset management: he pioneered the ETF robot financial management, and was the only one in the industry to obtain 12 patents and awards.

Julian is an important promoter of Taiwan's financial innovation, launching a generational revolution in Taiwan's ETF. He has successfully combined financial products, financial communications and AI to achieve profitable growth for 4 consecutive years. The ETF scale reached NT$1.5 trillion, setting a new record in the asset management industry. Creating the first technology export of Taiwan's fund industry, he not only actively interacted with financial supervision institutions in China, Hong Kong and Malaysia in 2006, but also acted as an investment consultant. He also published financial books to contribute to the society and promote new financial knowledge. He can be called an innovation model in Taiwan.

Resume

(1)Education	Global management and future leaders program, National Yang Ming Chiao Tung University, Taiwan Ph.D. in Economics, Shanghai University of Finance and Economics, China MBA, University of Wisconsin, Whitewater, USA Bachelor of Economics, Tunghai University, Taiwan
(2)Experience	Chairman, Yuanta Securities Investment Trust Company (2019-Present) President & CEO, Yuanta Securities Investment Trust Company (2012-2019) President & CEO, Polaris Securities Investment Trust Company (2006-2012) President & CEO, Polaris Securities (Hong Kong) Company (2004-2006) Vice President & COO, International Finance Department, Polaris Securities Company (2001-2004)
(3)Awards	CFA Society Taiwan, Excellence Award, 2019 Insight & Mandate, CEO of the Year: Asia, 2018 & 2019 National Brand Yushan Award (Taiwan), First Prize in Business Leader With Outstanding Performance Award, 2019 Ernest & Young: Entrepreneur of the Year, Taiwan, 2018 Asia Asset Management: ETF CEO of the Year in Asia, 2016 The Asset: Asia ETF Leadership Awards, 2016

Acceptance Speech

Thanks to the support of the Ministry of Economic Affairs and the National Industrial Innovation Award Judges, I am honored to receive this award. Behind all this, we must thank the company team for their joint efforts and the group's full support. In the future, under the trend of continuous innovation and development of the financial industry, we hope that with our efforts, we can continue to provide investors with more diversified products. We also expect that we can invest more resources in talent cultivation, pass on our own experience, and create the next milestone in the fund industry of Taiwan.

Chih-Hao Chang
N3 Platform Development Division, Taiwan Semiconductor Manufacturing Company Limited

Business Philosophy

Make it a habit to take on difficult tasks. Opportunities to innovate lie in the challenge.

Chih-Hao Chang,
Director

Reasons for Winning

Chih-Hao Chang developed the critical Fin process in TSMC's first generation FinFET technology at 16nm node and successfully started risk production in 2013. This keeps TSMC at technology leadership position in the competition of the new era of 3D devices. He introduced new material and optimized process for TSMC 7nm generation to have superior performance and low power which enable design customers to leverage the most advanced process technology for the first time to realize various applications in mobile, high-performance computing, AI and 5G. This in turn drives the semiconductor industry development in Taiwan. He also greatly enhanced RD infrastructure to improve development efficiency, such as 20x faster data search, 8x better experiment efficiency, and improving the experiment setup accuracy above 99%.

Chang is responsible for TSMC 3nm process development and baseline integration. In 2020, he demonstrated the first 3nm test chip in the industry with 1 billion logic gates and 256Mb static random access memory. He continues to push the extension of Moore's law to enlarge the technology gap between TSMC and its competitors.

Resume

(1)Education	Ph.D. in Electrical Engineering and Computer Science, University of California, Berkeley, USA B.S. in Electrical Engineering, National Taiwan University
(2)Experience	Director, N3 Platform Division, TSMC Department manager, N7 Platform Division, TSMC Program manager, N16 Platform Division, TSMC Technical manager, Advanced Technology Research Division, TSMC Senior integration engineer, Portland Technology Development, Intel, USA Senior process engineer, California Technology and Manufacturing, Intel, USA
(3)Awards	N7DD Idea Forum Contributor Award, TSMC N16 FinFET Program Best Instructor Award, TSMC Acquired 81 national patents, 46 of which are US patent

Acceptance Speech

After returning to Taiwan from Intel, I joined TSMC to work on advanced transistor research and later moved on to the development of 16nm, 7nm and 3nm processes. I was fortunate to participate in TSMC's journey of becoming the technology leader in the semiconductor industry, and to first-hand experience the similarities and differences in the innovation thinking between the East and the West.

The high complexity of the semiconductor manufacturing process requires many disciplined engineers to well execute while paying attention to details, and complicated experimental designs require continuous infrastructure improvement for better R&D efficiency. These are the foundations of innovative practice. When pushing the limit of every new technology generation, strong module teams with various expertise are absolutely critical.

I am grateful to the top-rated development teams that I have the privilege to work with in all these years and for TSMC in providing a world-class semiconductor R&D environment for me to contribute in process integration in new technologies. I thank the Ministry of Economic Affairs for this award and company's support so that I can continue to innovate and make impact in the semiconductor industry. I would like to share this honor with all the members who worked together in the TSMC R&D organization.

Peter Chang
E-Beam Operation Division, Taiwan Semiconductor Manufacturing Company Limited

Business Philosophy

Keep curiosity and imagination, don't be afraid of failure, learn from your mistakes, and keep moving forward until you succeed.

Peter Chang,
Deputy Director

Reasons for Winning

Peter Chang initiated the research and development of the multiple electron beam mask writer. In 2017, he successfully introduced the multiple electron beam mask writers into 7nm and 5nm mass production, and it became the production and R&D main force of 3nm and 2nm nodes.

He has invested the budget and team for the development of advanced mask technology since 2011. At the same time, through cooperation with equipment manufacturers, he developed the world's first multiple electron beam mask writer (a total of 262,144 electron beams), which achieved a three-fold increase in the exposure speed and a two-fold improvement in the accuracy of the pattern exposure position.

The multiple electron beam mask writer, combined with the application of low-sensitivity photoresist, is an epoch-making innovation in the mask industry and an inevitable application trend of advanced mask technology in the future. It lays the cornerstone for TSMC's advanced process development, and also assists the mask industry to innovate and enhance the overall value and applications of the industry, such as nanoimprint lithography.

Resume

(1)Education	M.S. National Cheng Kung University, Department of Mechanical Engineering (1992-1994) B.S. National Cheng Kung University, Department of Mechanical Engineering (1988-1992)
(2)Experience	Taiwan Semiconductor Manufacturing Co., Ltd. E-Beam Operation Division Mask Manufacturing Division 2 / Deputy director (2020-Present) TMASK3 department / Department manager (2019-2020) EUVMP (EUV mask and multi-beam project) / Senior project manager (2016-20219) NMT2 (Nano Mask Technology Department 2) / Department manager (2007-2016) HMASK2 Engineering-2 section / Section manager (2004-2007) HMASK1 Engineeering-1 section / Engineer (1999-2004) PRINCO Cooperation / Associate engineer (1996-1999)
(3)Awards	TSMC Golden Trade Secret Award (2020 & 2021) EBO Best Team Work Award (2016) TSMC DoE Symposium Award (2013) TSMC Idea Forum Award (2012)

Acceptance Speech

"R&D and innovation is a long and lonely road. The most difficult thing is persistence. Thank you to all of our partners who share same visions!

It is an honor to receive this award. First of all, I would like to thank the government for encouraging enterprises to innovate and develop. In addition to the affirmation of the jury, I also want to thank the chiefs, colleagues and my family members who accompanied me all the way. TSMC has always attached great importance to R&D and innovation, and invests quite high R&D expenditures every year, so that we have abundant resources to continue to innovate. It is a great pleasure to be able to work with a group of enthusiastic, outstanding partners in the high-quality environment of TSMC to complete the research and development of the multiple electron beam mask writer and introduce the advanced mask process into mass production. The research and development of mask technology is really hard, but seeing the advancement of wafer technology and people's lives has become better, I feel much fulfilled. "Stay hungry, stay foolish." I will continue to advance on the road of R&D innovation. Thank you everyone for your encouragement!

Hou-Wei Lin
Realtek Semiconductor Corporation

Business Philosophy

If you want to have a fulfilling life, you have only two choices: one is to 'work in a job you like', and the other is to 'make yourself like your job'.

Hou-Wei Lin,
Chief Officer

Reasons for Winning

Hou-Wei Lin has led Realtek's Bluetooth business unit to develop a number of Bluetooth chipsets that have been highly praised for their innovative technologies, functions, quality and performance. The Bluetooth business unit has grown significantly over a short period of time, helping boost Realtek's overall revenue. It has won 4 international awards, filed 33 personal patents, and filed 80 team patents. In addition, Hou-Wei developed an ultra-low-power Bluetooth 5.1 ANC (Active Noise Cancellation) solution, successfully expanding sales opportunities.

From 2018 to 2019, Hou-Wei's Bluetooth business unit achieved considerable revenue, enabling Realtek to become an industry-leading supplier of Bluetooth remote controller and TWS (True Wireless Stereo) Bluetooth ICs. Today, Hou-Wei continues to lead the team in Realtek, and collaborates with Taiwan's fabs to adopt advanced process nodes for highly competitive new products. Hou-Wei is committed to extending Bluetooth wireless technology with ANC DSP audio algorithms into the biotechnology and medical industries, with products that benefit both ordinary people and also related industries.

Resume

(1)Education	M.S. of Communication Engineering, National Taiwan University (1998-2000) B.S. of Electrical Engineering, National Taiwan University (1994-1998)
(2)Experience	Chief Officer, Realtek Semiconductor Corp. (2017-Present) Director, Realtek Semiconductor Corp. (2013-2017) Deputy Director, Realtek Semiconductor Corp. (2012-2013) Senior Manager, Realtek Semiconductor Corp. (2009-2012) Manager, Realtek Semiconductor Corp. (2006-2009) Project Manager, Realtek Semiconductor Corp. (2005-2006) Assistant Project Manager, Realtek Semiconductor Corp. (2004-2005) Engineer, Realtek Semiconductor Corp. (2001-2004)
(3)Awards	The RTL8762A won the Taipei International Computer BC Award 'Network Communication Category' Gold Award, 2016 The RTL8763B won the Taipei International Computer BC Award 'IC and Component Products' category award, 2017 The RTL8773B won the 2019 Taipei International Computer BC Award 'Gold Award', 2019

Acceptance Speech

First, I would like to thank the reviewers of the National Industry Innovation Award for their kindness and recognition. This award not only commends me, but also affirms Realtek's long-term commitment to R&D investment and innovation.

I am very grateful to Realtek Chairman, Alex Chiu, President, Yen, Kuang-Yu, Chief Operating Officer, Luke Huang, and senior officers at all levels for their guidance and support. Thanks to the support of the executives along the way, our team was able to overcome any obstacles we encountered, and we continue to grow stronger.

In recent years, the IC design industry has been highly competitive and is changing constantly. Realtek maintains its competitive advantage through focus, flexible market strategies, and excellent R&D and innovation capabilities. Our team continually recruits top talent in various fields to sustain this innovation. We have built a team with integrity, striving for superiority, trust, and self-breakthrough. Team members complement each other to make advances and achieve goals through strong teamwork. Through full empowerment, the team unites to deliver a high level of creativity and achievement.

Finally, I am proud to be a member of Realtek. The Spirit of the Crab drives me and keeps me moving: Teamwork (always moving in a pack, not alone), Adaptability (fast adjustment to win in a changing environment), and Agility (fast moving). Our mission is to enhance people's lives by giving them the opportunity to enjoy the technological progress emanating from Realtek.

Steve Cheng
CHYI DING TECHNOLOGIES. CO., LTD.

Business Philosophy

The driving force of innovation comes from knowing the needs, analyzing the needs, supplementing the knowledge, defining the direction, doing it by hand, and selling it seriously.

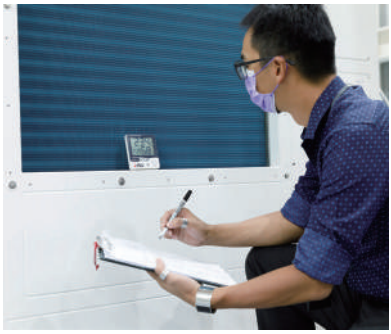
Steve Cheng,
Chairman

Reasons for Winning

Steve Cheng is committed to innovative research and development of environmental control equipment, greatly improving the yield rate of Taiwan's precision manufacturing process and reducing costs. He made the manufacturing processes which require especially environmental control of semiconductors to achieve ISO Class 1 with a temperature of ±0.01°C, a relative humidity of ±0.5%, and the highest level of cleanliness. He won the 2017 Small and Medium Enterprise Innovation Research Award and won the Display Component Outstanding Product Award from 2016 to 2019 three times. Starting from the circular economy to save energy, so far, he has sold 1100 sets of equipment to high-tech manufacturers and international suppliers, and successfully cooperated with the world's largest semiconductor equipment manufacturer.

Resume

(1)Education	Master of Business Administration, National Tsing Hua University (2019-2021) Dept. of Mechanical Engineering, Lunghwa University of Science and Technology (1990-1992)
(2)Experience	Chairman, CHYI DING Technologies. (2019-Present) General Manager, CHYI DING Technologies. (2006-2019) Manager, Dept. of Engineering, AIRTECH SYSTEM (2002-2006) Engineer, Dept. of Engineering, TECO Electric & Machinery (1999-2002)
(3)Awards	Taiwan SMEs Innovation Award, 2017 100 MVP Managers, 2015 Taiwan SMEs Innovative Leadership Award, 2013



Acceptance Speech

First of all, I would like to thank the working group of the Ministry of Economic Affairs and the review committees for their hard work.

Winning this award, I would like to thank the CHYI DING team for being my strong backing and sharing the joys and sorrows with me.

Over the past ten years, we have elaborately researched and developed to provide precision process mini-environment control, and energy-saving and carbon-reducing solutions for the semiconductor industry. I am deeply honored to be recognized by the Ministry of Economic Affairs.

Our vision is: to provide the best process environment for the world's most sophisticated processes, and to help companies and countries achieve carbon balance. To this goal, CHYI DING will continue to innovate and develop, and strive to reach the next milestone.

Wanjiun Liao
Department of Electrical Engineering, National Taiwan University

Business Philosophy

Wherever the heart is, the achievement is there. If you invest your interest in doing something meaningful to human society, everyone can contribute something.

Wanjiun Liao,
Distinguished Professor

Reasons for Winning

Wanjiun Liao successfully started researching inventions on mobile Internet phones. Through industry-academic cooperation, the patents proposed by MediaTek were incorporated in the IEEE 80216m and 3GPP 4G LTE international communications standards. Liao researched on cloud network virtualization, assisted Acer's technology deployment by means of technology transfer, and collaborated with IBM to invent CPU tunneling technology for data center. She developed the blockchain technology of the Internet Vehicles for transportation, and will introduce it into Huadong remote areas. She also developed a smart water perception system by machine learning to assist smart water meter companies in their digital transformation.

Liao designed novel mechanisms for multimedia streaming, and assisted MediaTek in the deployment of standards for WiMAX and 4G LTE mobile communications. The blockchain technology of the Internet of Vehicles helps to create innovative services for smart transportation, and provides more convenient transportation services for rural areas through smart digital technology.

Resume

(1)Education	Ph.D. University of Southern California, CA. USA (1993-1997) M.S. National Chiao Tung University (1990-1992) B.S. National Chiao Tung University (1986-1990)
(2)Experience	Distinguished Professor, National Taiwan University (NTU) (2010-Present) Vice President of Academic Affairs (Provost), National Taiwan University, Taiwan (2018) Director of Internet of Things (IoT) Research Center, National Taiwan University EECS (2018-2021) Director General, Department of Engineering and Technologies, Ministry of Science and Technology, Taiwan (2016-2017) Department Chair of Electrical Engineering, National Taiwan University (2013-2015)
(3)Awards	MoE Academic Award, Ministry of Education, Taiwan, 2015 Teco Award, 2014 Outstanding Research Award, National Science Council (NSC), Taiwan, 2006, 2009, 2012 Distinguished Engineering Professor Award, Chinese Institute of Engineer (CIE), 2010 Distinguished Electrical Engineering Professor Award, Chinese IEE (CIEE), Taiwan 2006 IEEE Fellow, class 2010

Acceptance Speech

I am very grateful for this opportunity to win the special honor of the Ministry of Economic Affairs' National Industrial Innovation Award. I am dedicated to forward-looking research in the field of network communication technology, and have always focused on academic breakthroughs, practical applications, and value creation as the goal. In addition to leading the research team to engage in innovative research, I also assisted in industrial upgrading through industry-university cooperation, and actively participated in international academic organizations to improve Taiwan's international visibility and substantive influence in the field of Internet communications. Here, I would like to thank National Taiwan University for providing the best research environment, the most abundant resources, the best research team, and the best industry-university cooperation platform, so that I can engage in first-class research. I would also like to thank my research team for overcoming all the difficulties and challenges with me, and realizing my ideals and goals. In the end, I am deeply grateful to my family who always silently support me behind, and let me face all the challenges bravely without worries.

Joy Cheng
Advanced Materials Center, Nano Patterning Technology Division,
Taiwan Semiconductor Manufacturing Company Limited

Business Philosophy

A positive and pragmatic attitude can proactively discover and solve problems, so that you can truly enjoy your work.

Joy Cheng,
Senior Manager

Reasons for Winning

Cheng led the development team to develop the first high-volume-manufacturing photoresist for Extreme Ultraviolet Light (EUV) for TSMC 7 plus technology. N7+ technology is the first commercially available EUV-enabled foundry manufacturing process technology in the world. Her team continued to make breakthroughs in high-productivity EUV photoresists and planarization materials for N5 technology. N5 technology provides about 20% faster speed than N7 technology or about 40% power reduction, making it the world's number one high density logic process. In addition, Cheng and her team developed ultrahigh-resolution photoresist, which enables the process simplification and further cost reduction for N5 and beyond.

TSMC's N7+ and N5 technologies beat global competitors and has supported global clients to get the best density and low-cost in application of mobile devices, chips and servers. Cheng and her team's innovations enhanced Taiwan's international competitiveness in semiconductor industry with its leading schedule and its expanding industrial clusters year by year. She follows Moore's Law and with her innovative research and development results, she introduces high-performance and small-area transistors to reduce manufacturing costs and increase international reputation.

Resume

(1)Education	Ph.D. in Materials Science Engineering, MIT, USA (2003) M.S. National Taiwan University (1998) B.S. National Taiwan University (1996)
(2)Experience	Senior Manager, Nano Patterning Technology Division, TSMC (2020- Present) Manager, Nano Patterning Technology Division, TSMC (2015-2020) Research Staff Member, IBM Almaden Research Center, USA (2006-2015) Postdoc. EECS/ MS&E, MIT, USA (2003-2005)
(3)Awards	TSMC Academician, 2017 IBM Grand Challenge Award, 2015 IBM Research Division Award, 2015 SPIE Advanced Lithography Grand Wilson Award, 2012 Acquired 105 national patents, 64 of which are US patent

Acceptance Speech

I am honored to receive this award. In addition to thanking the review team for their affirmation, I also want to thank my supervisors, colleagues, and family members who accompany me along the way. It is really a blessing to be able to face various challenges and difficulties and complete tasks with my team members. They are enthusiastic, outstanding, creative, and good at execution. I sincerely thank the company and subcontractors for their investing of R&D resources, so that our team can work together and accomplished missions that were previously impossible. I just stand on the shoulders of giants, and may this honor to my partners and team.

Jane Huang
Aromate Industries Co., Ltd.

Business Philosophy

A smooth production is the fruit of a well thought out manufacturing process, as quality is in the design.

Jane Huang,
President

Reasons for Winning

Jane Huang has led Aromate Industries Co., Ltd. to export its products to more than 47 countries world wide, it became the largest Air freshener manufacturer in Asia with stable and practical business model. She accelerated the transformation by modernizing the operation and promote the internationalization of the brand.

Jane popularize fragrance knowledge through factory tour and continues to develop and innovate key technologies with the combination of smart digital experience and industrial chain use of bio-degradable fragrance research and development to promote theintegration of related industries. She transformed the company from a manufacturing economy to a service economy. Built Aromate Wonderland as a fragrance education center which provides customized fragrance products and created many local jobs.

She insists on taking 3.5% of the annual revenuefor the R&D budget and the fragrance oils extracted through industry-academic cooperation are used to help the social organizations in need.

Resume

(1)Education	University of Hartford, MBA (1993-1995) University of Hartford, MSI (1991-1993)
(2)Experience	President, Aromate Industries Co., Ltd. (1995-Present)
(3)Awards	Green Rising Star Award 2017 The National Brand Yushan Award 2015 National Award of Outstanding SMEs 2013 Industrial Technology Advancement Award 2010 Innovative Technology Advanced Business Award 2009 Rising Star Award, 2006

Acceptance Speech

Thanks to the affirmation of the Ministry of Economic Affairs and the support of our partners in Aromate, we insisted on innovating fragrance products in Taiwan for 25 years. Aromate Industries offer clients with a one-stop service from fragrance formulas, trend analysis, product design, style suggestions right down to point of sale display stand. That is why our regular customers consider Aromate Industries as not only a supplier, but also their space fragrance research and development partner.

Thanks to the government's support to Aromate Industries in recent years, we have received several R&D grants and committed to the development of carbon-reducing sustainable materials. We have successfully turned many agricultural and forestry waste like coffee grounds into carbon-reduced plastic products which have successfully obtained Conformitè Europëenne (CE).

Aromate Industries is an enterprise that emphasizes on "family" culture. Our employees are a group of reemployed women. In 1996, Taiwan's enterprises moved westward on a large scale and we worked hard and began to develop. Our work culture comprise of no overtime and to provide a better working environment for all. Aromate Industries has been supporting the charity groups and rural communities since we became profitable. This honor is not only for me, but for all my colleagues who worked together in the company. They deserve just as much credit.

Albert Liu
Kneron, Inc.

Business Philosophy

Dare to dream big and dare to challenge, Taiwan definitely has the strength to do subversive innovations that can influence the world.

Albert Liu,
Founder & CEO

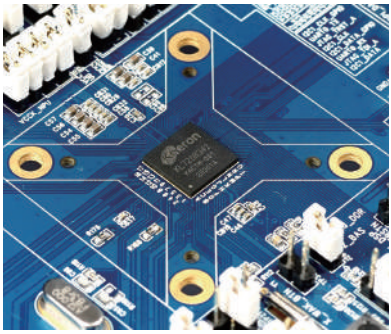
Reasons for Winning

Albert Liu has many key international patents and publications in the journals of smartphones, algorithms, artificial intelligence and advanced semiconductor ICs. He has published a total of 68 journal papers. He developed the elite chips that can process various signals simultaneously, such as voice, image, video, 2D signal, 3D signal, etc. in the industry. The single-layer multi-touch chip technology that he invented has been applied on more than billions of devices worldwide. It has been successively adopted by well-known international companies such as Lenovo, Motorola, OPPO, and TCL in the smartphone industry.

He has led Kneron, Inc. to winning numerous awards, and it was regarded as one of the first unicorns in Taiwan by the Ministry of Science and Technology. Kneron was evaluated by CBinsights as one of the 36 companies with world-changing technologies in 2019. Kneron, was rated as the world's top 10 AI chips by EETimes, and it, along with Intel and TI, was also ranked as the world's top 3 AI chips by IoTEE times in 2020. His book "Deep Learning Hardware Design" has been adopted by many famous universities and is regarded as a classic book in the AI industry.

Resume

(1)Education	Ph.D. in EE, UCLA. (2005-2017) M.S. University of Califorina, Berkeley. (2002-2004) B.S. National Cheng Kung University (1999-2003)
(2)Experience	Founder and CEO, Kneron Inc. (2015-Present) Staff Engineer, Qualcomm. (2012-2016) Assistant Manager, MStar Semiconductor (2012-2012) Senior Engineer, Samsung (2010-2012)
(3)Awards	ICT Month Outstanding ICT Elite Award 110, 2020 The 58th ten outstanding young persons, 2020 100MVP, 2019



Acceptance Speech

I would like to thank the organizers, evaluation committees, and predecessors of the industry, and also to all those people around me, who support me, encourage me, and some despise me on the road to entrepreneurship. I am honored to receive this award, which represents a little harvest of my efforts and persistence on the road of scientific research over these years. When AI and edgecomputing were not understood nor accepted by most people a few years ago, I chose the road with a small group of people. We stayed up late, often worked overtime. Sometimes it's too late to go home, and we slept in the office. We endured the grievances, loneliness and doubts, and slowly, it proved that we achieved success bit by bit. I always adhere to the idea of using technology to make the world a better place till now. We will strengthen our beliefs, face all kinds of challenges, and shine in the world fearlessly in the future. Thank you !

Tony Chi
Advanced Tool and Module Development Division,
Taiwan Semiconductor Manufacturing Company Limited

Business Philosophy

Only by laying a good professional foundation, maintaining strong curiosity, and making good use of the power of the group can we keep moving forward.

Tony Chi, Manager

Reasons for Winning

Tony Chi built an indestructible back-end copper wire for TSMC, and reduce the resistance by more than 50% to reach the world's lowest resistance, and increase by at least 3% in the 5nm technology node device performance.

He developed a method to fill the copper material into 5nm wire structure as liquid, and designed a dedicated machine for TSMC to reduce the cost by at least 50%. Besides, he introduced cobalt as the adhesion layer and covering layer for metal interconnections to TSMC, which increased the reliability by more than 100 times, importing the world's first cobalt process machine for TSMC and successfully to mass production. This concept of cobalt adhesion layer and covering layer greatly improves the reliability of the metal wire and make it possible to reduce the resistance of the metal wire by continuously reducing the thickness of the diffusion barrier layer.

Resume

(1)Education	Ph.D., Material Science and Engineering, National Taiwan University (2005-2008) M.S., Material Science and Engineering, National Taiwan University (2004-2005) B.S., Material Science and Engineering, National Taipei University of Technology (2002-2004)
(2)Experience	Manager, R&D, Taiwan Semiconductor Manufacturing Co., Ltd. (2019-Present) Section Manager, R&D, Taiwan Semiconductor Manufacturing Co., Ltd. (2018-2019) Technical Manager, R&D, Taiwan Semiconductor Manufacturing Co., Ltd. (2013-2018) Principle Engineer, R&D, Taiwan Semiconductor Manufacturing Co., Ltd. (2008-2013)
(3)Awards	Acquired 30 national patents, and 19 of which are US patents 1 article was published in 2010 IEEE International Interconnect Technology Conference TSMC Golden Trade Secret Awards (2018 & 2019) TSMC Idea Forum Award (2018)

Acceptance Speech

I am honored and thankful to receive the recognition from National Industrial Innovation Award of Ministry of Economic Affairs.

First of all, I would like to thank the government for establishing this national award to encourage industrial innovation, and the evaluation committees and experts for their affirmations. In addition, the suggestions and encouragement of TSMC Vice President S.M. Jang , Director M.H. Tsai, Senior Manager Hung-Wen Su and other supervisors are the biggest backstage driving force.

I am fortunate to be in the R&D function of TSMC. TSMC not only gathers a group of engineers who shared the same vision with many creatively ideas every day, it also provides a stage and a lot of resources and opportunities for us to accomplish our innovative ideas.

In the end, I would like to give the credit to my teammates and family members; they work with me and support me all the way. In a challenging future, I believe that if we continue to have curiosity on everything, soon we will taste the sweet fruits of innovation again.

Yi-Keng Fu
Industrial Technology Research Institute

Business Philosophy

Good, better, best, never let it rest. Until your good is better and your better is best.

Yi-Keng Fu,Deputy R&D Director

Reasons for Winning

Yi-Keng Fu uses the compound semiconductor laboratory as a platform to link materials, equipment, semiconductors and traditional industries to develop new key technologies. He established the NSDB (Needs/Solution/Differentiation/Benefits) systematic R&D method, and won the Best R&D Service and Industrialization Award, Ministry of Economic Affairs Taiwan, 2020. His innovative products gained Computex BC Award, ITMonth 100 Great Inventions Award and R&D 100 Awards. He integrated the optoelectronic and silicon semiconductor industries, developed the first 8-inch si substrate with thickness of silicon-based GaN-on-Si wafers that conform to the standard CMOS process, laying the foundation for the development of Taiwan's GaN/Si high-power and high-frequency components.

He promoted the research and development of 25 sub-manufacturers, built domestic UVC LED industrial chain and brought NT$1.5 billion turnover, and increased employment by 140 people. He manufactured innovative products of smart flow water sterilization, HydroNovation, which successfully adopted by two- faucet water purifier companies, and combined with the Tzu Chi Foundation's disaster relief system to international aid. The cross-industry alliance create more value-added and applications.

Resume

(1)Education	Ph.D. National Central University (2016-2010) M.S. Chung Yuan Christian University (2014-2016) B.S. Chung Yuan Christian University (2010-2014)
(2)Experience	Deputy R&D Director, ITRI (2021-present) Manager, ITRI (2014-2020) Engineer, ITRI (2010-2014)
(3)Awards	Best R&D Service and Industrialization Award, Ministry of Economic Affairs Taiwan, 2020 MOST Praise, Ministry of Science and Technology Taiwan, 2019 R&D 100 Award, R&D World Magazine Announces USA, 2017, 2017, 2018 Innovative Products, ITMonth Taiwan, 2016 Outstanding Young, China Youth Corps. Taiwan, 2015 Outstanding R&D Substitute Military Service, National Conscription Agency Taiwan, 2012

Acceptance Speech

"Striving for perfection and never slack until the good becomes better, and better to the best" has always been my motto.

First of all, I would like to thank the Industrial Technology Research Institute for giving me a stage to perform. I was a former engineer whose focus is epitaxy, but they gave me full training from components to system, cooperation of upper to lower stream industry, and then led the team to establish the research and development platform of III-V compound semiconductors successfully.

Using this platform to serve the industrial industry, we have achieved the upgrade of the lighting industry, the establishment of Taiwan's UVC LED industry chain, the development power of tandem optoelectronics and silicon semiconductor industries, and the contribution of 5G component technology and service startups. The industrial innovation results have allowed me to gain the honor of this award. I also want to thank the company's chief executive and colleagues for their support and help. This is an indispensable key factor for me to win the awards. Family is always the biggest pillar of my work. Without their support and understanding, who could ever devote themselves to work 24 hrs Finally, this is a memorable honor, I will continue to work hard and promote III-V compound semiconductors to bring more innovative energy to our industry in the future.

Kuan-Neng Chen
National Yang Ming Chiao Tung University

Business Philosophy

Focus on one field, and hope to achieve world-class standards.

Kuan-Neng Chen,
Chair Professor and Vice President for International Affairs

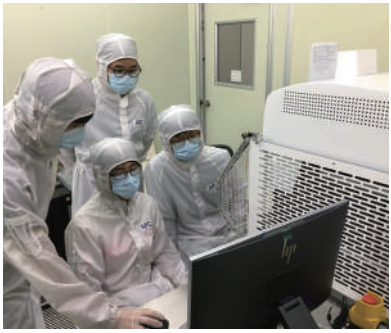
Reasons for Winning

Kuan-Neng Chen is a world-renowned scholar of heterogeneous integration and three-dimensional integrated circuit (3D IC). He has cultivated in this research field for more than 20 years. He has cooperated with famous academic institutions, world-wide universities, and leading semiconductor and electronics industries. He holds 83 patents and has published more than 300 publications, with brilliant achievements in innovation. He led different industries to conduct cross-field cooperation, assisted 12 companies in technology upgrades and launch of forward-looking products, 34 technology transfer and industry-academia collaboration, with a total amount of more than NT$90 million.

He uses patent layout, technology licensing, and industry-academia collaboration to help the industry maintain its leading position in the world. He also develops new technologies, establishes integrated platforms, and creates blue ocean strategies such as new markets and new products to add value to domestic industries.

Resume

(1)Education	Ph.D. in Electrical Engineering and Computer Science, MIT, USA (2005) M.S. in Material Science and Engineering, MIT, USA (2003)
(2)Experience	Chair Professor, National Yang Ming Chiao Tung University (2021-present) Program Director, Micro-Electronics Program, Ministry of Science and Technology (2021-present) Specially Appointed Professor, Tokyo Institute of Technology (2017-present) R&D Director (Joint-Appointment), Industrial Technology and Research Institute (2016-present) Research Staff Member, IBM T. J. Watson Research Center (2005 – 2009)
(3)Awards	MOST Outstanding Research Award, Ministry of Science and Technology, 2021, 2018 Fellow of National Academy of Inventors, 2020 / IEEE, 2018 / IET, 2020 / and IMAPS, 2021 Futuristic Breakthrough Technology Award, Ministry of Science and Technology, 2019 IEEE EPS Exceptional Technical Achievement Award, 2018 William D. Ashmon – John A. Wagnon Technical Achievement Award, IMAPS, 2021 NCTU Outstanding Industry-Academia Cooperation Achievement Award, 2021, 2020, 2017, 2014, 2012, 2011



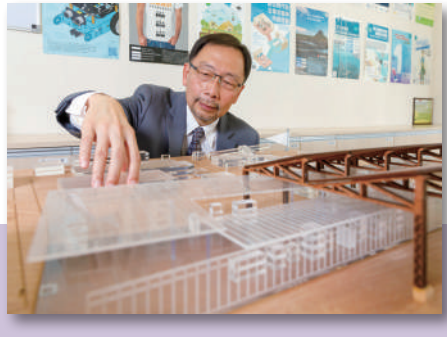
Acceptance Speech

I am happy to receive the "Industry-Academia Collaboration Award" of National Industrial Innovation Award from the Ministry of Economic Affairs. The award represents the affirmation of me and my research team. I also want to thank the Institute of Electronics, College of Electrical Engineering, National Yang Ming Chiao Tung University for providing high-quality research environment and assistance, and also thank to my family members for their support.

My research field is 3D IC, heterogeneous integration, and advanced IC packaging. I have been doing research in this subject for more than 20 years. Also because of our continuous focus and excellent achievements, we have become the world's leading technology team, and have attracted many domestic and world-wide industries to cooperate with us.

The wish to contribute research results to society and promote the upgrading and application of industrial technology to innovate products has always been the strongest motivation for my research and my team. The award is not only an affirmation of us, but also a great expectation of us. In the future, the research team and I will continue to work hard, hoping to have forward-looking and breakthrough research results continuously and transform them into practical applications in order to create the greatest social value.

Peter J. Sher
Feng Chia University



Business Philosophy

Update every day! Innovate every day !

Peter J. Sher,Chair Professor

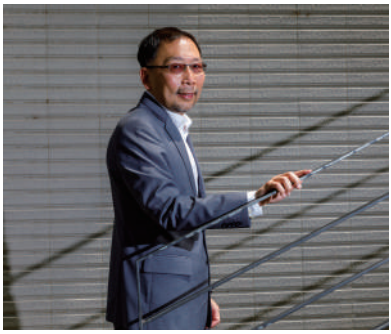
Reasons for Winning

Peter J. Sher set up an international platform for promoting Taiwan's animal vaccines into global markets through industry-academic collaboration, technology transfer and commercialization. This novel service model has successfully developed global markets through collaborating with world class pharmaceutical companies. He subsequently facilitated the launch of a national BRIDGE program to facilitate new models of industry-university-research cooperation mechanism, covering fields such as communications, semiconductors, biotechnology and pharmaceuticals, digital content and learning. He served as a committee member of many government-related departments, participated in their policy formulation and implementation, and deployed College of Management of National Chi Nan University as the platform when he served as the Dean to promote resources integration and expand international exchanges in conjunction with primary national policies.

While served as Chief Operating Officer at National Applied Research Laboratory, he established the “NARLabs Medical Device Value Creation Alliance”, a platform of co-creating one-stop service of pipeline management from idea generation through out initial public offering.

Resume

(1)Education	Ph.D. in University of Warwick , Marketing and Strategic Management, UK (1993-1999)
	M.S., Industrial Design ,Pratt Institute,,U.S.A(1985-1987)
	B.S., Industrial Design,Tatung University (1980-1984)
(2)Experience	Chairman, Corporate Synergy Development Center (2014-2017)
	Chief Operating Officer, National Applied Research Laboratories (2014-2016)
	Dean, College of Management, National Chi Nan University (2005-2011)
	Principal Investigator, Industry-University BRIDGE Program for National Telecommunication Program (2006-2009)
	Director, Technology Licensing Office, National Chung Hsing University (2001-2004)
	Director, Patent Examination, Dept. of Patent, Intellectual Property Office, Ministry of Economic Affairs (1991-1993)
(3)Awards	Distinguished Premium Scholarship, Ministry of Education, 2019-2021
	Fellow, Chinese Society for Management of Technology, 2014
	The Best Paper, 5th China Goes Global Annual Conference, Harvard University, 2011
	Special Scholar Talents Reward, Ministry of Education, 2011-2012
	Special Talents Reward, National Science Council, 2010
	K. T. Lee Award, Chinese Management Association, 2010



Acceptance Speech

I have been served academically for 25 years and appreciate abundant R&D resources and competency for enabling industrial competitiveness. Therefore, I am committed to the goal of efficiently bridging the R&D resource of the academia and industrial needs. I am very grateful for this honor, National Industrial Innovation Award !

I authorized the research and development results of National Chung Hsing University to the animal health business group of Bayer, German to build an international vaccine research, production and marketing platform in 2004, and promote vaccines to be listed as a strategic industry in Taiwan. I followed the same goals in the subsequent related working experiences, including the Dean of the College of Management of National Chi Nan University since 2005, the Chief Operating Officer of National Applied Research Laboratories since 2013, and the Chairman of Corporate Synergy Development Center since 2014. I have the same beliefs and hope that I will contribute to Taiwan's industry and society! After retiring from National universities, my main duty is to help Feng Chia University to perform digital transformation and talent cultivation, a criticality for next origin of industrial competitiveness.

Finally, I want to thank God! Thanks to my parents for naming me “Jih Hsin”, which means to renew and improve myself every day! Thanks to my wife, Ming-Hsuan, for understanding me and accompanying me all along !

Appendix


產業創新成果
聯合頒獎典禮


創新，突破 邁向未來


創新，突破
產業創新成果
聯合頒獎典禮


創新，突破 邁向


創新，突破 邁向


創新，突破 邁向未來

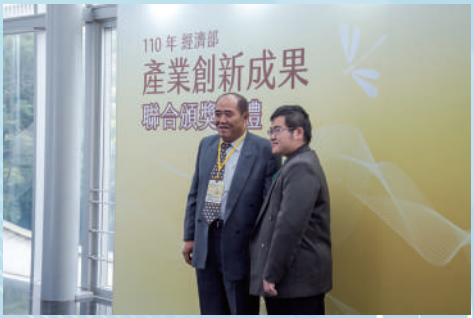

10 年 經濟部
產業創新成果 聯合頒獎典禮
創新，突破 邁向未來


創新，突破 邁向


創新，突破 邁向未


創新，突破 邁


產業創新成果 聯合頒獎典禮


110 年 經濟部
產業創新成果
聯合頒獎典禮


創新成果 聯合頒獎典禮
創新，突破 邁向未來

MOEA strives to promote industrial innovation in Taiwan to infinity and beyond

National Industrial Innovation Award (NIIA)

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