Taiwan Tech Arena (TTA) is a flagship startup ecosystem building program launched by the National Science and Technology Council. Through integration of various resources, TTA strives to transform Taiwan into a vibrant international startup ecosystem by supporting startups through our networks of partner accelerators, mentors, investors, and corporate members while expanding their global reach to create more business opportunities.

ISSN 2663-9076
9 772663 907002

TAiWAN TECH ARENA

AI Chips Empower a Plethora of Innovations and Applications

AI Chips are Driving Numerous Innovations and Enabling a Wide Range of Applications

Engaging TTA Black Card Community

By sharing their valuable experience and insights, the TTA Black Card community consistently adds to the growth and advancement of the Taiwan Startup Ecosystem

TAiWAN TECH ARENA

TTA

SEP. 2023

12

Bridging Innovation and Entrepreneurship for Startup Success in Taiwan to Go Global

In Taiwan's Vibrant Entrepreneurial Scene, TTA Serves as a Catalyst for Global Startup Growth by Bridging Technological Innovation and Budding Entrepreneurs

TTA Celebrates 5th Anniversary, Connecting Taiwan to the Global Startup Ecosystem

TTA was celebrating its fifth anniversary! We were immensely grateful for the presence of over 300 distinguished guests from various sectors, including Premier Chen Chien-jen, at the celebration ceremony held on September 11th. Together, we commemorated the fruitful accomplishments of the past five years. As we embark on the next five years, in line with the vision outlined by National Science and Technology Council Minister Wu Tsung-tsong, TTA is committed to supporting the 'Taiwan Chip-based Industrial Innovation Program (Taiwan CBI)' initiative. We aim to attract top international chip startups and innovative teams to Taiwan, fostering their development and contributing to Taiwan's position as a global hub for chip design and innovative applications. This will deepen our collaborations with various industries in Taiwan, enabling the country to play a pivotal role in the global chip-driven industrial innovation transformation.

In this issue, we are pleased to express our gratitude to Mr. Jean-François Casabonne-Masonnave for his dedication in promoting Taiwan-France cooperation in technology and law since taking office. His efforts include enhancing collaboration in high-tech innovation fields such as artificial intelligence, software, and semiconductors, as well as fostering connections within the entrepreneurial community of women in technology in both Taiwan and France. Additionally, we would like to introduce two of our Black Card members, Leland Lai and Justin Ho. These seasoned entrepreneurs and investors have chosen Taiwan as their home and are now an integral part of our community. Discover what drew them back to Taiwan and initiated their connection with TTA. They are committed to supporting the growth and innovation of Taiwanese startups, working alongside TTA to cultivate the local entrepreneurial ecosystem.

Launched in June of 2018, TTA has to date supported over 700 startups. In this issue, we introduce 8 outstanding AI, Climate Tech, Health Tech, Sport Tech, and Software startups which have been accelerated by our accelerator partners and university partners. Everyone at TTA anticipates great things to come not just for these startups but for all TTA alumni, present, and future startups. With the support of the National Science and Technology Council (NSTC) and its commitment to further promoting innovation and entrepreneurship, improving entrepreneurial environment, training to develop a diverse pool of talent, and invigorating the entrepreneurial spirit in youth, TTA will undoubtedly continue to play a key role in the development of Taiwan start-up ecosystem.

Going forward, TTA will continue its commitment to driving innovation in Taiwan's industries and fostering startup development as well as to support Taiwan's startups ecosystem. As mentioned in this issue's featured article, AI chips-driven innovation has not only established Taiwan as a global hub for IC design but has also elevated Taiwan's international visibility. TTA will connect Taiwan's innovative technology to the global industry chain for a better tomorrow.

Andrea Hsu

Andrea Hsu

Director General, Department of Academia-Industry Collaboration and Science Park Affairs, National Science and Technology Council

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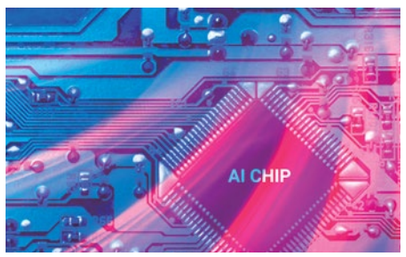

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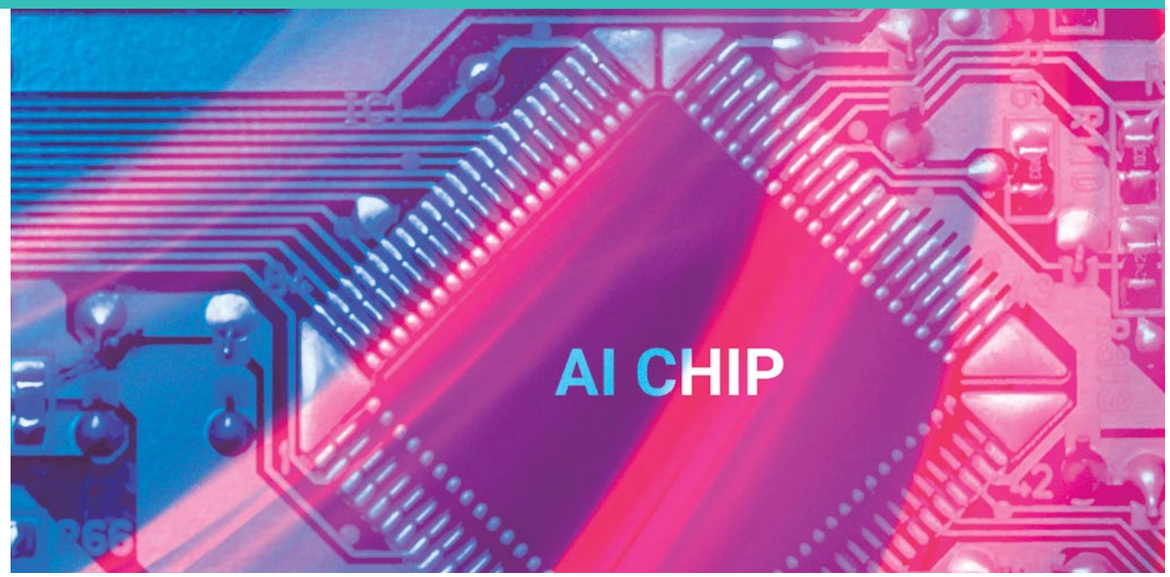
TTA and accelerator partners organize events on a regular basis to provide startups with the opportunity to present themselves and build the networks they need to thrive

AI Chips Empower a Plethora of Innovations and Applications

COVID-19 has reshaped lives globally over the last couple of years. As countries recover, the convenient remote tools that emerged will persist. New software has altered user behavior. Remote work demands boosted downloads of conferencing apps like Hangouts, Meet, Teams, and Zoom. Houseparty saw a similar surge in downloads for social networking.

IEK Consulting
Nancy Liu



COVID-19 has changed the way of life for many people during the past two or more years. Whilst countries around the world are gradually emerging from the pandemic, the wide range of convenient and remote applications that have arisen from the pandemic will continue to thrive.

New software has contributed to a change in users' behavior. For example, the need for remote working during the pandemic has resulted in a significant increase in the downloading of online conference apps such as Hangouts, Meet, Microsoft Teams and Zoom. Social networking services such as Houseparty also experienced a rapid growth in the number of downloads.

The use of virtual conferencing systems such as Spatial Systems for work and learning has been increasing. Amazon AR Shopping and NextVR are also seeing higher demand driven by the growth of online entertainment and social networking such as AR shopping, VR gaming and game watching.

Meanwhile, to avoid the overloading of the medical system caused by people rushing to hospitals for any health concerns, the market for wearable devices to monitor the wearer's physical status at home is on the rise. The adoption of products such as the Kinsa Smart Thermometer and the Fitbit Charge 4 for tracking blood oxygen levels has been increasing. Home fitness devices such as Smart Mirror and connected fitness equipment are gaining popularity possibly because people have been unable to go to the gym.

A large number of innovative Internet-of-Things (IoT) products are finding ways to become part of our day-to-day life at an ever-quicker pace. This is a new business opportunity for end-consumer products resulting from the pandemic.

Other innovative use cases such as autonomous transportation and smart unmanned factories are also emerging. This will expand the adoption of advanced semiconductors in a variety of devices. The combination of 5G and AI requires much faster processing speeds than before, whether in the cloud or for edge computing.

AI chips previously used in cloud servers are seeing higher costs and electricity consumption due to the growing requirement for computing functions and expanding data volumes. As a result, more and more edge computing devices will be deployed in our daily life. Edge computing devices with AI chips will be prevalent at retailers and distributors and in industries such as healthcare, manufacturing, transportation, smart cities and related infrastructure.

It can be expected that the sensors installed at factories, in cars and in the retail and service industries will collect a large amount of data for processing by edge computing. The use of cross-referencing can reduce data processing and application costs and hence improve service quality.

The requirements for edge computing are rapidly changing. The focus of chip R&D is on the improvement of chip performance and the reduction of energy consumption and transmission latency to enhance system reliability. With AI chips, edge computing will integrate the functionality of cloud servers to serve as the foundation of hybrid computing. This is a key area of focus for Taiwanese manufacturers.

5G and AI are accelerating the growth of the semiconductor industry. However, complex computing makes power consumption a bottleneck. The Department of Industrial Technology of the Ministry of Economic Affairs has been leading the Industrial Technology Research Institute (ITRI) in moving forward with the development of in-memory computing and embedded memory, and in cooperating with domestic semiconductor companies and the University of California, Los Angeles (UCLA). With support from the Defense Advanced Research Projects Agency (DARPA), the program is striving to develop the next generation of memory, which will be faster, more reliable and energy efficient, and able to retain data when the power is turned off.

It is envisioned that the performance will be comparable to that of Intel and ahead of Samsung, and it will overcome the interference problems of memory arrays, which will be a huge step forward for the industry. If used in mobile phones, the power consumption for AI functions could be extended from one day to over three days - a new milestone. In the future, heterogeneous packaging technology will enable the integration of more advanced processors. The outlook is extremely bright for AI, auto chips and high-performance computing chips.

Meanwhile, the Department of Industrial Technology has established the AI-on-Chip Taiwan Alliance (AITA) by working with domestic semiconductor companies to set up four technology special interest groups (SIGs). AITA now has a total of 147 domestic and overseas members. AITA members discuss the direction of the technology roadmap on this platform. Leading domestic semiconductor companies also provide chip R&D and formulate common technology interfaces to accelerate the R&D of next-generation semiconductors. It is hoped that the collective efforts by the industry, academia, research organizations and government agencies can create the next economic miracle for the Taiwan semiconductor industry.

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France Expands Efforts to Deepen International Connections and Support Taiwanese Startups

After four years, Mr. Jean-François Casabonne-Masonnave is leaving as Director of the French Office in Taipei, having enhanced collaborations, boosted local startup recognition, and earned a Science and Technology Profession Medal Award while expressing optimism for future relations.

After four years in Taiwan as the Director of the French Office in Taipei, Mr. Jean-François Casabonne-Masonnave is leaving his post in August, 2023. Director Casabonne-Masonnave's contributions during his post to promoting exchanges between Taiwan and France in the areas of education, human rights, technology and economic affairs have been well recognized by the international community. In bidding farewell at an official press conference held on August 1, 2023, Director Casabonne-Masonnave delivered remarks, noting how emotional he felt and how fast his four years in Taiwan have flown. His time in Taiwan was filled with projects, sometimes hardships, but above all great emotions, as well as wonderful and unforgettable encounters.

Director Casabonne-Masonnave pointed out that he has had a lot of dealings with high-level officials and leaders across many different industries from both countries during his time in Taiwan. These efforts have led to closer cooperation between French and Taiwanese communities in many different fields. In giving some examples, he mentioned the moving of the French Office in Taipei to the 39th floor of Taipei 101 in March, 2021. After the relocation, all its units, which were formerly in different locations across the city, are now housed in the same building, enabling it to achieve more effective work coordination and provide better service. Director Casabonne-Masonnave also spoke of the establishment of the Lycée International Français de Taipei (LIFT) in June, 2022, noting the new school would foster further educational and cultural exchanges between the two countries.

The director also highlighted the joint efforts to drive entrepreneurships and technological innovations as he believes collaborations that allow people to pool their technologies, skills and experiences to bring innovations to reality will greatly benefit the community. COVID-19 may have stopped people from traveling but it also presented opportunities for people to think and work more creatively, which is bringing about burgeoning innovations across tech sectors including artificial intelligence, semiconductor and software services as the world economy recovers in the post pandemic era.

An example of such efforts was the collaboration with the National Science and Technology Council to help establish La French Tech Taiwan at the Taiwan Tech Arena (TTA). The aim was to bridge the startup communities and innovation ecosystems in both countries. La French Tech Taiwan offers a free space for exchanges and advice to French entrepreneurs.

Taiwanese startups at VivaTech 2023 and French startups at InnoVEX French Pavilion

With the support from the Ministry of Digital Affairs and the Ministry of Economic Affairs, TTA organized a team of 27 Taiwanese startups to participate at VivaTech 2023. Their participation at the event gave them a chance to connect with the international community and expand their presence in Europe while elevating Taiwan's status in the global startup scene.

Through the event, the Taiwanese startups not only were able to tap resources from the French startup ecosystem and build bilateral partnerships, but their outstanding achievements also captured the spotlight, leading VivaTech to recognize Taiwan as a frontrunner in Asia's startup scene. The joint efforts between France and Taiwan raised Taiwanese startups' international visibility, and more importantly, they set a perfect example of Taiwan's tech diplomacy.

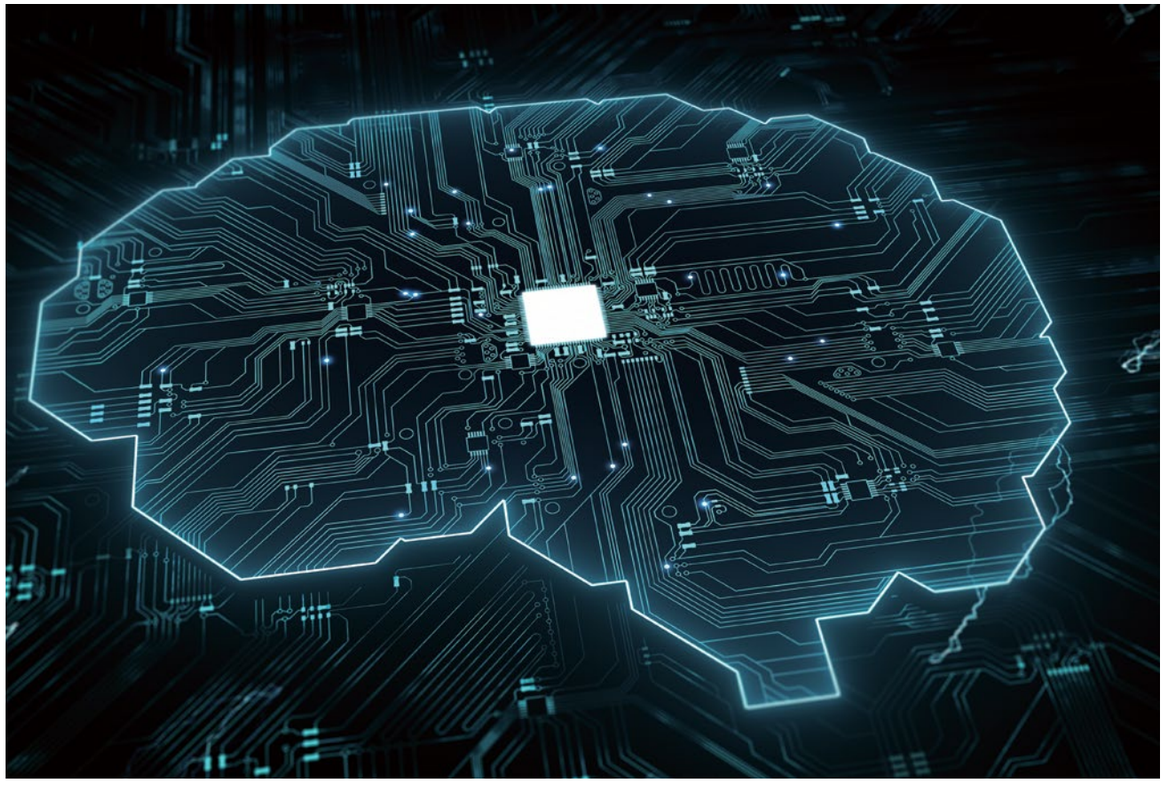
InnoVEX, a global startup focused exhibition of COMPUTEX, is another major event to the startup community. In 2023, La Team France made a big comeback to this important ICT exhibition after three years of absence due to the COVID-19 pandemic. The French Pavilion at InnoVEX showcased French startups' innovative solutions, presenting them opportunities to connect with potential clients and buyers. A French Tech demo session was also held to give them more chances to introduce their solutions to a wider audience and attract more interests.


Photo by Bureau Français de Taipei

Director Casabonne-Masonnave found such events very inspiring to the community and more importantly they could foster business growth. He hopes these efforts can extend beyond technological products and innovations. The whole world including the hi-tech sector shares common values such as freedom, peace and stability. When the world faces a big challenge, be it a health threat or climate change, we look to technologies to help get us through. With rising awareness on environmental sustainability, biotech and energy solutions are gaining more attention. Director Casabonne-Masonnave expects more projects and programs to be in place, aimed to encourage entrepreneurs to take the leap in several key areas such as biomedicine, information security, quantum technology, and renewable energy.

The National Science and Technology Council's Science and Technology Profession Medal was conferred by Minister Wu Tsung-tsong on Director Casabonne-Masonnave July 25, 2023 to honor his hard work and dedication to advancing bilateral ties between France and Taiwan. Director Casabonne-Masonnave also paid farewell visits to President Tsai, Premier Chen Chien-jen and Minister of Foreign Affairs Joseph Wu. He received warm welcome and enthusiastic recognition at each of these visits.

Director Casabonne-Masonnave said that before Taipei he spent 10 years in Asia as a French diplomat and that Taiwan was the fourth country he had been posted to. Just a few days before leaving Taiwan and heading back home, he expressed satisfaction that the bilateral ties between France and Taiwan have taken on greater depth during his time here and confidence that his successor will continue to strengthen the relationship between the two countries.



Generative AI Makes Perfect Timing for Starting Business

Nurturing Startups And Driving Innovation: Justin Believes The Impact Of Generative AI Is Poised To Eclipse Even That Of Self-Driving Technology.

Justin Ho

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In an inspiring interview with Justin Ho, a TTA Black Card member renowned for his entrepreneurial endeavors, we embark on a journey through his career evolution, from his trajectory encompasses impactful stints at financial giants Goldman Sachs and Citadel before catapulting into pivotal roles at Uber, where he played an instrumental role in initiating the mapping and self-driving vehicle divisions. Today, Justin is more than a successful entrepreneur; he has transformed into a devoted venture capitalist and advisor, passionately committed to nurturing startups and driving innovation.

In the exciting realm of artificial intelligence and generative AI, Justin believes the impact of generative AI is poised to eclipse even that of self-driving technology. “The recent developments in generative AI, I believe, are going to be 100 times the impact of self-driving, which will completely disrupt transportation,” said Justin.

Justin sees that any type of white-collar job out there can have a creativity increase, or productivity boost from generative AI technology, citing examples like OpenAI’s GPT-3 and its applications across various sectors, he identifies the transformative potential for solving an array of challenges in industries such as legal use case, engineering, pharmaceutical drug development, e-commerce, assisted writing, sales and marketing, etc. Drawing parallels to Taiwan’s semiconductor dominance, Ho predicts the emergence of a bustling ecosystem harnessing AI’s unprecedented possibilities.

“The end markets with leveraging this technology have been created, and solving problems creates a once-in-a-lifetime guarantee to build valuable products in businesses,” said Justin. “I feel like that’s the biggest point that I would want to communicate to entrepreneurs that are in Taiwan – now is the time – It is the best time you can get, given how global and connected the world is, you can start a company anywhere.”

His enthusiasm for entrepreneurship remains palpable, with his sights set on launching a venture capital fund specializing in AI and deep technologies. His roadmap is rife with advising, investing, and business-building, all rooted in a pursuit to revolutionize industries, enrich lives, and give back to society. As an embodiment of the entrepreneurial spirit, Ho exemplifies how one individual’s vision can drive seismic shifts in business landscapes.

“A customer-centric approach encourages entrepreneurs to immerse themselves in understanding customer pain points.”

The Road to Entrepreneurship

Ho's entrepreneurial flair ignited at a tender age, kindled by the spark of selling a medley of items including turtles, baseball cards, and polos. This embryonic fascination bloomed into a lifelong passion, ultimately steering his professional compass.

Despite his initial foray into finance, it was clear that entrepreneurship was his true calling. Uber's rapid ascent onto the global stage drew him in, and he was fortunate to be part of the company's meteoric rise.

At the outset, Uber boasted a staff of 900; by the time Ho moved on, it had ballooned to an astounding 15,000. These pivotal years at Uber not only imparted invaluable lessons about growth but also solidified his reputation as a tech innovator.

During his tenure, Ho spearheaded the creation of two groundbreaking technology divisions: the mapping group and the self-driving vehicle division. These endeavors, which he facilitated from their inception, remain vital to Uber's ongoing success.

Challenges and Triumphs

Inevitably, Uber's journey was not without challenges. The sheer velocity of its growth occasionally gave rise to chaos, offering lessons in the importance of balanced expansion. Justin, who assumed leadership of crucial technology divisions, also confronted the unexpected hurdle of the pandemic. Uber's pivot towards delivery and logistics amid the crisis underscored the essence of innovation in times of adversity. The pandemic catalyzed their innovation, propelling them to navigate unprecedented circumstances and emerge stronger.

The challenging period ultimately culminated in GoPuff's acquisition of the company for a significant sum, marking a testament to Justin's resilience and adaptability.

TTA and the Taiwanese Ecosystem
While Justin's legendary career had reached impressive heights, his story didn't end with the GoPuff acquisition. It was, in fact, the springboard for his greater mission—supporting startups globally. With a heart full of entrepreneurship, he extended his advisory services to startups, fostering a thriving ecosystem. His involvement in diverse African startups and his deep-rooted ties to Taiwan led him to TTA's Black Card program, aligning his mission with theirs—to fuel entrepreneurship and innovation.

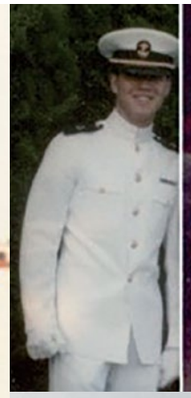
Justin lauds TTA's role as a bridge between entrepreneurs, providing a hub for collaboration and growth. With a foundation rooted in culture, he emphasizes the pivotal role of values and ethics in driving startups forward. In the global tech landscape, he envisages Taiwan's ascendancy, riding the wave of AI and generative AI technologies. This convergence of culture and cutting-edge innovation is where TTA can play a critical role, nurturing startups in an environment that fosters both creativity and ethical business conduct.

Advice and Future Collaborations

As for advice to the Taiwan startup ecosystem, Justin advocates a customer-centric approach, urging entrepreneurs to immerse themselves in understanding customer pain points. He suggests a strategy of licensing off the shelf technology as much as possible to accelerate product development, and building the core technologies in parallel. Google Maps is a successful example of a company that licensed its routing services and map data from 3rd parties to get their products to consumers quickly, while developing their own in-house technologies in parallel.

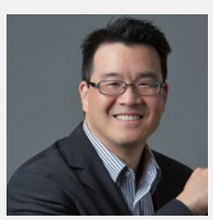
With optimism, he encourages Taiwanese entrepreneurs to leverage Silicon Valley's proximity for networking and innovation. As the interview draws to a close, Justin's advice and insights resonate as a call to action, an invitation to seize opportunities and revolutionize industries through collaboration and innovation.

Justin applauds TTA's endeavors, noting their success in cultivating an ecosystem conducive to entrepreneurs. He offers the example of Singapore, a government that adeptly fosters innovation through strategic investments and initiatives. Reflecting on Taiwan's entrepreneurial landscape, he highlights certain challenges, including the need for a more robust venture capital ecosystem and the necessity of establishing a significant global presence. Ho believes that government backing is pivotal in overcoming these hurdles and cites successful precedents, alluding to Singapore's role in his own startup journey.



Taiwan's Startup Scene: Learning from Small Countries

Fostering A Diverse Entrepreneurial Ecosystem Can Bring Significant Benefits To Smaller Countries Like Sweden, Estonia, Lithuania, And Singapore. By Focusing On Well-Designed Public Policies That Support Innovation And Risk-Taking, These Nations Can Promote Sustainable Economic Growth And Enrich Their Societies.



Leland Lai

https://www.linkedin.com/in/lelandlai/

Leland Lai, a distinguished black card member of the Taiwan Tech Arena (TTA) community, shares his insights on Taiwan's startup landscape. With a background in TMT (Technology, Media, Telecom), Leland now serves as a representative of the state of Arizona to promote trade and investment between Taiwan and Arizona. As a mentor for the TTA community, he also advises SMEs and startups for their international expansion.

In this exclusive interview, Leland highlights his passion in helping Taiwan fine-tune public policies and regulatory environment to attract more investments and foster greater opportunities for startups. He suggests looking to small countries like Sweden, Estonia, Lithuania and Singapore as examples and advocates for more experimentation and risk-taking in Taiwan's entrepreneurial ecosystem.

Leland believes that well-crafted public policies can enrich an entire nation, instead of trying to create US$1 billion Unicorns, or build one Facebook, one Google at a time."

Where Did This Interest in Public Policy Come From?

Leland explains, "I had the John McCain plan when I was 18 years old. I wanted to join the U.S. Navy, serve my country, and run for the White House."

"When I got severely injured," Leland continues, "I pivoted to plan-B and was selected as a Coro Fellow in Public Affairs. Only 48 post-graduates get selected out of 50 states per year. Coro graduates have been in every presidential administration since 1948. Others have become household names like Democratic Senator Feinstein and Republican Congressman Sununu. But I figured out during this very prestigious, one-year fellowship that I would make a horrible politician because I am incapable of disguising my emotions. So! I pivoted again, this time to TMT."

Since 1990, Leland's TMT career has included one Nasdaq IPO and two acquisitions, one involving Motorola and one involving DISH Networks.

Taiwan's Receptive Startups

The majority of Leland's discussions with Taiwanese startups revolve around international expansion. Even those who have studied abroad seek guidance on navigating the global markets. Some startups are at the forefront of technology, focusing on high-tech solutions in areas like hardware and telecommunications; while others explore opportunities in social commerce, which marries e-commerce

"By offering an environment for experimentation and innovation, startups can showcase their capabilities and prove their worth, thus garnering support from the government and investors alike."

with and social media. The range of interests demonstrates Taiwan's diverse entrepreneurial landscape.

Challenges in Taiwan's Regulatory Environment

When discussing expansion, Leland raises concerns about the challenges startups face with Taiwan's financial regulations. He emphasizes the need for more accommodating and progressive policies, citing examples of startups choosing to register in countries like Singapore due to more business-friendly environments. He urges for a change in the regulatory mindset, with a focus on supporting startups rather than inhibiting their growth.

Using Arizona as an Example

Given Leland's deep admiration for the late Arizona Senator McCain, it follows that he would end up representing Arizona's investment office in Taiwan. Leland expanded on his small country examples by citing Arizona as an example for how a small state can win against large states inside the US border:

"Arizona only has a population of 7 million people, yet it is out-competing the big states like California, Texas, and New York economically, punching above its weight." Leland said. Arizona is the first state in the US to allow innovative business models pioneered by the like of Airbnb, Uber, and Waymo, when other states were paralyzed by outdated regulations and special interests. The empirical proof is self-evident. Arizona ranked first in the nation in 2022 for the U.S. dollars invested (32 billion) by international companies, according to FDI Markets. Arizona is projecting 1.6% annual job growth, outpacing the rest of the U.S., which is projected to see 0.4% in annual growth. "What if Taiwan can produce these kinds of numbers against Korea, France, and Germany?" Leland asked.

Leland got excited going through all these Unicorns that struck their first buckets of gold in Arizona. "I think Arizona's aggressiveness in being so business-friendly across both the Republican and Democratic administrations is an important lesson to be learned by not just Taiwan, but other nations and states as well."

Use of Sandbox Approaches

Taiwan has a wealth of human capital, a vibrant tech ecosystem, and a proud history of technological advancements. However, as startups increasingly seek alternative locations with more favorable regulatory environments, Taiwan loses not only the potential tax revenue and job opportunities associated with these businesses but also the chance to position itself as a leading innovation hub in the region. The allure of Singapore, with its ease of doing business, relaxed financial regulations, and strong support for startups, poses stiff competition for Taiwan's entrepreneurial landscape.

Leland thinks Taiwan can have the best of both worlds by balancing steady economic policies with using "sandboxes." In the software industry, sandbox is a testing environment in which new or untested software or coding can be run securely in isolation, without damaging the original production codes. For example, Taiwan can carve out sandboxes specifically for startups (define by the amount of capitalization, years in business, number of staff, etc.) by relaxing its financial and company registration regulations for a narrowly defined target industry. Once the startup achieves a certain level of maturity and has more resources, it can then be folded back into existing financial and company regulations.

Call for Action

To achieve this vision, Leland suggests conducting in-depth research and presenting quantitative data to policymakers, demonstrating the potential benefits of regulatory changes. He believes the TTA community could play a pivotal role in advocating for a sandbox-like approach for startups in Taiwan. By offering an environment for experimentation and innovation, startups can showcase their capabilities and prove their worth, thus garnering support from the government and investors alike.

In conclusion, Leland's call for action to study successful small countries and advocate for more risk-taking policies in Taiwan's startup ecosystem is a vital step towards capitalizing on the country's potential and minimizing the opportunity cost of losing startups to more favorable jurisdictions.

With the support of the TTA community and other stakeholders, Taiwan has the opportunity to create a thriving startup ecosystem that not only benefits its economy but also fosters technological advancements and innovation for a brighter future.

As Taiwan aspires to become a hub for innovation and entrepreneurship, it must learn from the experiences of small countries that have successfully nurtured startup ecosystems. The receptivity of founders to external advice, combined with a more supportive regulatory environment, could pave the way for Taiwan to become a globally recognized startup destination. By encouraging risk-taking and being proactive in engaging with policymakers, the TTA community can contribute to building a brighter future for Taiwan's startup scene.

STARTUP STORY

TTA evolved since its launch in 2018. Over the past five years, TTA's focus on supporting early-stage startups and collaborating with international accelerators and universities has yielded positive outcomes. The success of alumni start-ups reflects the effectiveness of the programs that bring to the entrepreneurial ecosystem.

DEEPX

DEEPX Mass-produces AI Accelerator Chips, a Key to Accelerating Innovation and Mainstreaming of Smart Vision Applications

The recent craze over ChatGPT throws light on the underlying business opportunities of AI applications. AI applications driven by cloud services have attracted their fair share of attention, but Edge Computing AI applications are also on the rise. Edge AI helps reduce large amounts of data uploads to the cloud, which enables applications like photographic lenses and electronic devices to analyze data and respond instantly thanks to high-performance computing power. The technology also comes with its own advantages in cutting costs and saving power. In addition, Edge AI has crucial strengths in personal privacy and information security; it also creates many business opportunities in the embedded systems market. That is reason enough to be optimistic about the business opportunities in Edge AI development. AI tech startups are challenging market leaders through capital investment and continue to perform brilliantly in a series of AI chip product lines, from Edge Computing to cloud servers.

The DEEPX start-up team from South Korea has set their sights on the development of AI accelerator chips for Neural Processing Units (NPUs). DEEPX CEO Lokwon Kim has a PhD in electrical engineering from UCLA and more than ten years of experience in Silicon/AI Chip design at Broadcom and Apple. DEEPX has raised 50 million US dollars and established a chip design and development team 50-plus strong, and it has its sights set on creating next-gen NPU chips.

In early 2023, DEEPX launched the DEEPX Series of solutions, which includes four semiconductor solutions, namely DX-L1, DX-L2, DX-M1, and DX-H1, each optimized for a different core AI application. At the same time, they launched the DEEPX software development kit DXNNTM, enabling the four semiconductor solutions developed by DEEPX to be driven under a unified software framework. DXNNTM series products can be applied to various fields, from small-sized sensors to edge servers. They are in the running to become an important product package (All-in-4 Edge AI Total SolutionTM) in the AI semiconductor market.

One of the key differentiators of DEEPX's AI chip product line lies in their technological prowess. The chips deliver high-performance AI capabilities while ensuring power efficiency, computational efficiency, AI accuracy, and support for the latest AI algorithms. This technological advantage has propelled DEEPX to the forefront of the AI semiconductor industry, surpassing global competitors' NPU (Neural Processing Unit) technology. Furthermore, DEEPX's AI chips offer superior cost competitiveness compared to GPUs and other market solutions, creating a significant edge in the NPU field.

DEEPX also recently launched three modular NPU products. The ultra-small camera module equipped with the DX-L1 chip is the first product in the world that runs the latest DNN algorithm on a PCB the size of just half a business card, all without a heat sink, thus performing AI computational processing that only GPUs could do. Currently, the company is actively working on a proof of concept with companies both in Korea and globally that operate smart CCTV and control systems. In addition, DEEPX has also developed the M.2 module and PCIe module-type DX-M1 chips used in inference servers. It is currently shipping to customers for testing. And it is also using promotional activities to draw more customer participation.
Since the beginning of this year, DEEPX has cooperated with Hyundai-Kia Motors, POSCO DX, and Jahwa Electronics to promote the commercial testing of AI solutions such as robots, smart cameras, and factory automation. DEEPX is also cooperating with CoAsia to enter East Asian markets like China and Taiwan. In September of this year, DEEPX will participate in the Consumer Electronics Unlimited (IFA 2023) expo to be held in Berlin, Germany, where it will advance its business exchanges with European companies working in the robotics, automotive, and telecommunications industries.

Taiwan Tech Arena Helps Connect To Taiwan's Global Electronics Manufacturing Ecosystem And Supply Chain

Kim says he believes that Taiwan is an important global manufacturing center for electronics. In the past, he had cooperated with companies in Silicon Valley to enhance DEEPX's name in the tech field, but for extending product reach and expanding business, he still needed to link up with Taiwan's manufacturing industry. With the assistance of Taiwan Tech Arena (TTA), DEEPX participated in the TTA Global Forum in InnoVEX 2023 held at Computex in 2023, where DEEPX was able to interact and exchange more frequently with Taiwanese companies. Its discussions with Taiwan OEM/ODM customers helped DEEPX develop AI applications for industrial computers and focus on the design of next-gen robots.

Since camera modules are widely used in smart cars and smart manufacturing, Kim pays special attention to the development potential in smart camera modules in Taiwan. Kim believes that co-designing AI-driven camera modules with Taiwanese OEMs/ODMs will help spur diverse development in AI applications. He expressed his gratitude to the TTA for its role in helping tech start-up teams make the crucial connections with Taiwan's electronics manufacturing ecosystem, and gave the TTA high marks. He said he believes that although fundraising is important, some of the most important benefits come from making connections between the tech innovation teams and the industrial chain and providing business opportunities to cooperate with major manufacturers. DEEPX is currently establishing a liaison office in Taiwan, with the assistance of the TTA, which will serve as the starting point for linking up with industry in Taiwan. Although the staff has just one person at the moment, the benefits of the office have already been demonstrated.
Looking to future development, DEEPX will initiate formal mass production of NPU chips as well as targeting AI applications in the automotive market. The European Union is now formulating passenger vehicle safety regulations, requiring vehicles to have functions for automatically detecting babies or pets in the car within 15 minutes to prevent the consequences of leaving them in cars. DEEPX believes that this will create more business opportunities for AI applications.

Moving forward with product planning, DEEPX will first obtain ISO26262 certification to use DEEPX NPU IP in the automotive field; it will then make automotive SoC chips that meet the safety and reliability requirements of the automotive market. Kim emphasized that their cooperation with Taiwan's electronics supply chain and major OEM/ODM manufacturers is a crucial step toward the future development of DEEPX. He hopes to keep seeking opportunities for cooperation with industry in Taiwan to help bring more AI applications to more users, and more benefits to society at large.

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Profet AI

Profet AI Helps Companies Overcome AI Implementation Challenges, Showcases Taiwan's Outstanding Global Achievements

In just the past few years, AI has become a crucial part of many smart applications. Then there is ChatGPT, which has surprised global companies ever since its debut in late 2022. Many companies that were originally caution about AI have now dispelled those doubts and have embraced AI-driven digital transformation. For a company to adopt AI, it must first and foremost possess an adequate budget and a team of AI professionals. Secondly, it needs to identify a suitable focus area to optimize benefits within budget constraints and align with the operating team's expectations.

Today's world faces a shortage of AI talent. It is challenging for large companies to introduce AI, let alone small and medium-sized companies (SMEs), which often face limitations in adopting this technology due to their restricted resources. Profet AI's automated machine learning (AutoML) platform, bolstered by the IAPS accelerator, is dedicated to assisting companies in swiftly implementing AI applications. A unique end-to-end, no-code machine learning platform, requires only a day of training to initiate AI application projects within a week. This rapid onboarding empowers companies to swiftly cultivate their own AI culture. Currently, Profet AI boasts over 150 successful global cases.

Jonathan Yu, Global General Sales Manager at Profet AI, pointed out that while many companies have specific expectations for AI's outcome, their potential is constrained due to a lack professional data scientists or AI experts. These companies often run into difficulties, including a lack of knowledge about how to integrate AI or identify suitable AI application scenarios. Profet AI introduced the AutoML platform, drawing from the experiences of master craftsmen; by employing AI modeling, it facilitates technology transfer and demonstrates the value of data.

Tailored AI Solutions for Manufacturing

Taiwan's manufacturing industry commands a significant global presence. However, most AI solutions offered by foreign companies cater to the financial and retail industries, making it difficult to meet manufacturers' needs on products and technical support. That is why, at its establishment, Profet AI set its sights on providing better products and the most comprehensive technical services specifically tailored for the manufacturing industry. The AutoML platform integrates more than 50 machine learning algorithms commonly used in manufacturing. General field experts can use Automatic Settings to efficiently complete model training, while advanced personnel can use Quick Settings or Precision Settings to customize and create the most suitable model. As an illustration, when the third generation of the founder of Hai Rei Foods assumed leadership of the company, they harnessed the AutoML platform to usher in AI applications—a transformative tool for traditional industries heading digital transformation.

"Aside from budget and expertise constraints, the challenge in promoting AI for companies is simple: they do not know where to start or how to access project benefits. In the end, it is difficult to obtain operational team approval." He continued, " Our vast experience across diverse manufacturing domains positions us well. Ready To Go Applications now spans over 12 industries and more than 100 AI application scenarios. It can help companies identify suitable scenarios sooner and reduce AI project lead time. Companies can evolve from their initial project experience, and then adopt the most suitable application scenarios."

Collaboration with AUO and Hive Ventures for Global Outreach

With increased government emphasis on startups, renowned startup accelerators such as StarFab, TTA's IAPS, SOSV-MOX, and SparkLabs have entered the Taiwan market. In addition, the Ministry of Economic Affairs (MOEA) has long worked with institutes such as the Industrial Technology Research Institute (ITRI) to foster digital transformation among industries, driving industrial uplift within Taiwan. Yu believes that these trends will not only accelerate startup growth but also expedite market entry for products and services. Furthermore, public sector policies offer favorable development opportunities for startups. Yu highlighted that MOEA-subsidized companies often partner with specific institutes to identify startups equipped with innovative technologies for digital transformation. In the long run, these subsidies not only facilitate traditional industries' advancement but also showcase startups' strengths, enhancing market reputation. This comprehensive approach favors sustained company growth over mere financial grants.

Profet AI has demonstrated impressive performance in Taiwan, with ongoing expansion into global markets. Its presence in the Japanese market, marked by participation in the programs respectively organized by Accelerate Aichi by 500 and Pre-Station Ai, includes strategic collaborations with Ubiquitous AI, with additional partnerships anticipated. The Chinese market saw the establishment of Aedgetech, a joint venture with AUO. With the combined strengths of both companies, it has entered the Chinese market and amassed a double-digit customer base. In Southeast Asia, Profet AI has already established its first partnership in Malaysia and is collaborating with Hive Ventures to explore the Vietnamese market. The company has also held overseas Crossover Talks to demonstrate the AutoML platform to local manufacturing partners, capitalizing on the huge business opportunities in the realm of smart manufacturing.

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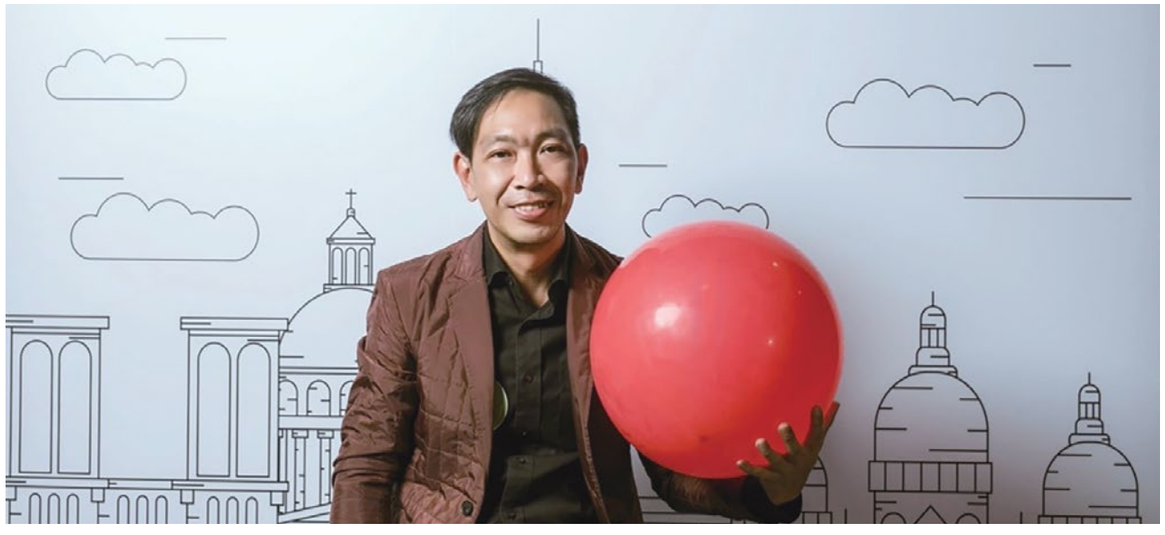

Blutech

Blutech's One-stop Service Enables Manufacturing Industries to Readily Master Carbon Emissions Data

In the face of the global net-zero emissions trend, Taiwan's manufacturing industries will need to provide comprehensive carbon emissions data to meet government regulations and customer needs. However, it is fairly difficult to collect comprehensive machinery data without affecting the operation of production lines. Built with LoRa technology on LPWAN (low-power wide area network), Blutech's NeVerLoSs® LoRa and WSDMS (Wireless Sensor Data Management System) can help manufacturers set up industrial control dashboard and energy consumption analysis platforms quickly, which is the first step in digital transformation.

For data collection of factory systems and production line equipment, Blutech co-founder/marketing director, Deral Chen pointed out that some manufacturers have set up data acquisition systems early on. After Germany formulated the Industry 4.0 initiative in 2011, the first step for the operational systems of the Industrial Internet of Things (IIoT), which is the backbone of smart manufacturing, is to obtain data of OT devices. Various smart functions have since been developed thereof. However, most of the data collected during this period was mainly pertaining to temperature, vibration, etc., while carbon emissions data was mainly gathered from electricity data. As such, further attention in this area is warranted.

Deral further pointed out that with increasingly stringent requirements for net-zero emissions imposed by the global market and supply chain, manufacturing industries need data acquisition and analysis systems which can be readily adopted, and Blutech's products and services can meet their demands. The company's solution consists of NeVerLoSs LoRa and WSDMS. They operate through the use of a LoRa transmission chip, which is supported by a proprietary module and the NeVerLoSs LoRa protocol. They connect equipment gauges around the factory and energy data is then monitored through the WSDMS.

Deral explained that there are several reasons for choosing LPWAN. First, it is not easy to install wiring in a manufacturing site. Therefore, the best way to increase efficiency of the set-up is to use wireless transmission. The regular wireless local area network (WLAN) is susceptible to interference from metallic materials and electromagnetic waves in factory equipment. Furthermore, its bandwidth would have been too large. Whereas, LPWAN has a long transmission range and its bandwidth is appropriate for control dashboard systems that only need to transmit simple signals, making it the first choice for such systems. The reason for adopting LoRa among various LPWAN standards is that it has been adopted by large global enterprises such as Amazon. Its reliability has since been proven by the market. Furthermore, LoRa's built-in AES-128 encryption system can also significantly reduce the probability of data hacking. Underpinned by these two features, Blutech has developed its NeVerLoSs® LoRa technology, which transmits data over a distance of several kilometers and in collision-free packets, ideal for dashboard data transmission.

Paired with WSDMS, NeVerLoSs LoRa was developed by Blutech specially for manufacturing sites. The system consists of the Data Ant (data acquisition unit), Meter Ant (IIoT electricity gauges) and Data Queen (IoT gateway), which are able to acquire the electricity consumption data of factory equipment and display it on a dashboard, before transmitting it to the back-end system according to the preset frequency and priority. NeVerLoSs LoRa is able to help the management keep track of the data.

Via NeVerLoSs® LoRa transmission technology and the WSDMS, Blutech has created a standardized one-stop energy data and sensor data acquisition system. Deral went on to say that the current process of constructing a data acquisition system for manufacturers is mostly performed by system integration companies. They would first take inventory of a manufacturer's needs, and then look for suitable hardware on the market and build the system using their own software. Although such customized system can meet the manufacturer's need at the time, the complexity of the hardware and software sources will cause numerous problems in the subsequent maintenance, upgrading and expansion. In addition, the cost of customized design is also higher, which is not necessarily the best choice for small and medium-sized manufacturers with limited resources.

Blutech's standardized system is designed to solve the aforementioned problems. Since the data acquisition methods of factory equipment are fairly similar, its standardized system can meet most, if not all, needs. It only requires simple configuration and installation to go online. Meanwhile, future maintenance and expansion will not be restricted by a specialized system, and the cost is far lower than that of a customized design. With the advantage of a standardized product, Blutech's one-stop service can help manufacturers implement data acquisition and transmission systems quickly, so that customers can have a electricity data visualization system within a short period of time and meet market demand for carbon emissions data. Supported by sensor data, customers can quickly adopt applications such as energy management, energy performance indicators, water resource management and carbon inventory through Blutech's comprehensive SaaS service platform within the WSDMS infrastructure. This is equivalent to deploying and expanding several systems all at once.

Blutech has since helped many manufacturers set up factory-wide data acquisition systems. Far Eastern Fibertech, which produces high value-added nylon fiber products with advanced equipment and textile technology, has been relying on Blutech's WSDMS since 2015. Connected using NeVerLoSs® LoRa transmission technology, Far Eastern Fibertech has maintained a very low failure rate for the past eight years, while continuing to expand its systems. In addition, many other manufacturers in various industries have also adopted the power monitoring system with the assistance of Blutech.

Blutech has built a reputation for its carbon data acquisition technology and solutions. Chen recalled that when Blutech was founded, domestic entrepreneurship was still in the infancy stage and there were no mechanisms in place to matchmake new startups with the capital market. All teams, including Blutech, had to figure things out themselves. Subsequently, with the help of government policies, financial institutions' understanding of new startups improved, and their willingness to inject capital and related mechanisms were enhanced. These changes were crucial for entrepreneurs. Thus, Chen hopes that Taiwan's entrepreneurial environment will become more friendly, so that the startup success rate can be boosted, thereby continuing to breathe life into the country's economic development.

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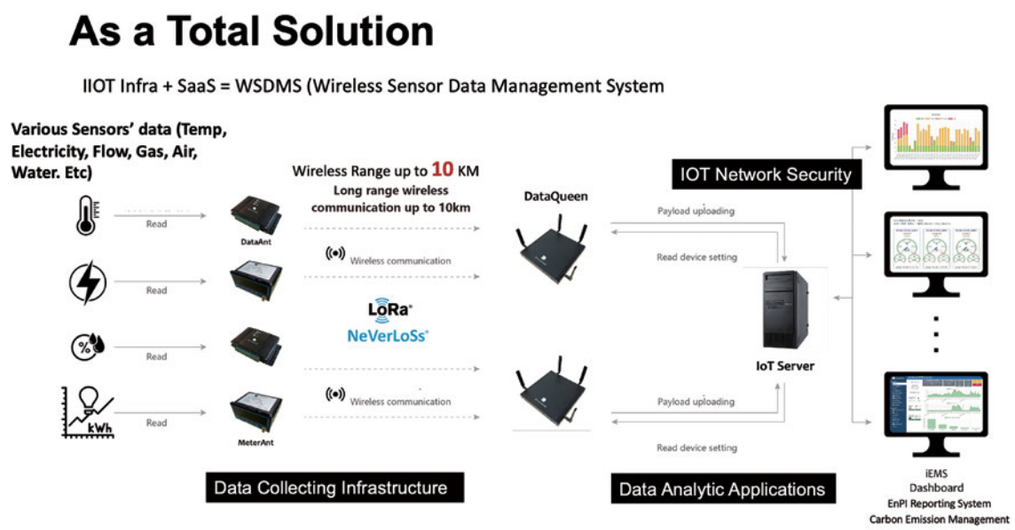

Mbran Filtra

Winning Two Consecutive CES Awards, Exclusive Technology by Mbran Filtra Attracts Global Partnerships

As the wave of ESG has overtaken the world, the Consumer Electronics Show (CES) 2023 held early this year centered around the theme of sustainable development to address global challenges. A diverse range of innovative solutions presented by attending participants were showcased. Among the exhibitors, Taiwan's Mbran Filtra participated in CES with a proprietary innovative filtration material, which ultimately won an award in the "Environmental Protection" category, for its potential in bringing a never-before-seen contribution to all humankind. In fact, with assistance from the Taiwan Tech Arena (TTA), Mbran Filtra has participated and won awards for two consecutive years. At CES 2022, Mbran Filtra won an award for "the world's smallest filter."

Green Chang, CEO of Mbran Filtra, said that the company participated in CES 2022 and won an award with a product co-developed with partners. In 2023, the company once again took part in the trade show and won an award with its proprietary filtration material. There are two key aspects behind Mbran Filtra winning the awards. Firstly, the company adopted green manufacturing processes as early as 2020, replacing chemical materials with non-toxic, eco-friendly alternatives. As a result, generation of toxic waste is prevented in the production process, thus resolving waste treatment issues. Secondly, in 2022, the production process was further upgraded to a low-carbon, biomass manufacturing process, reducing carbon emissions by 50% to 70% during membrane production. Consequently, it has gained favor from equipment suppliers and end-users.

Additionally, aside from assisting Mbran Filtra participating in CES, in mid-2022, the TTA also extended a special invitation to former CES award-winning teams to share their experience in drafting successful press releases. This helped Mbran Filtra gain insights into utilizing the media as marketing channels to attract the attention of more global brands and investors at the international event in 2023.

Gaining Foothold in Membrane Materials Market Through Unique Technical Capability

Founded in 2019, Mbran Filtra is dedicated to the research and development of membrane filtration materials, making it the first company in Taiwan to produce microfiltration hollow fiber membrane products. The company offers a wide variety of products based on microfiltration hollow fiber membrane technology, including hydrophobic and hydrophilic membranes made from polymer materials, such as polyethersulfone (PES), polyamide (Nylon), polyvinylidene fluoride (PVDF), and polypropylene (PP), which are able to satisfy requirements in different application scenarios.

Green Chang said that in the past, Taiwan relied heavily on foreign supplies as it lacked the capabilities to produce microfiltration membrane materials. While many companies have attempted to enter this field, no products were ultimately launched due to technical limitations. Despite the company faced competition from international brands such as 3M and Mitsubishi at the initial stage of establishment, during the COVID-19 pandemic, major global membrane suppliers were experiencing unstable supply. This enabled Mbran Filtra to utilize the experience it accumulated to draw the attention of businesses, prompting them to begin using its products.

For instance, a major global sports brand has taken an interest in Mbran Filtra's technical capabilities. The brand utilizes Mbran Filtra's membrane material to produce miniaturized filters in a sports bottle designed for outdoor athletes. The product features an ability to filter raw and unprocessed water into safe drinking water. The water bottle is now extremely popular on the market.

Debuting in Medical Devices Industry, Transitioning to Diversified Business Development

In fact, after receiving recognition from the CES 2022 Innovation Awards, Mbran Filtra has since gained significant global market visibility, leading many companies to actively seek collaboration opportunities. In earthquake-prone Japan, in which its people often have heightened alertness, in view of a shortage of membrane materials among suppliers, the Japanese manufacturer who was responsible for producing emergency kits decided to collaborate with Mbran Filtra in 2022. We co-developed a filter cartridge that could be installed in plastic bottles for use during various types of natural disasters to ensure filtration of untreated water into safe drinking water. Currently, the filter cartridge is in the final stage of product certification. Furthermore, charity organizations such as Tzu Chi, which has long been dedicated to philanthropic endeavors, and Love Binti International, a non-governmental organization, have also partnered with Mbran Filtra to produce similar filters. These products have been delivered to countries affected by typhoons and floods, as well as underserved regions in Africa, to ensure that local populations have access to clean drinking water.

Green Chang pointed out that due to the shortage of raw materials, the global supply of membrane materials remains highly unstable. The instability not only affects industrial wastewater treatment and replaceable filters, but also triggers a regional reshuffling in the dialysis consumables market. As such, BenQ Dialysis has also begun working with Mbran Filtra to achieve a one-stop production of hemodialysis machines in Taiwan using the experience accumulated by the two companies in this field. As opposed to filtering bacteria and impurities in water which requires hollow fiber membrane pores of 200 nm, hemodialysis requires pores ranging from 40 nm to 80 nm. As such, there is hardly any difficulties in the technological adjustment. With our collaborative efforts with BenQ Dialysis to automate the application of membrane onto the outer case, the production capacity will be boosted, and opportunities for cross-domain ODM/OEM collaborations will be enhanced. As a result, the ongoing project is progressing smoothly, and mass production is expected to begin once the TFDA certification is obtained.

It is worth noting that BenQ Dialysis was extremely impressed with the membrane products of Mbran Filtra and proposed to assist in the production of membrane materials during the partnership. If it goes well, the production capacity of membrane materials will be boosted substantially, which will lead to an increase in overall market share. Furthermore, due to numerous requests from industrial manufacturers for filtering trace amounts of heavy metal-laden wastewater, Mbran Filtra has initiated the development of integrating graphene into its current membrane materials. It is expected that relevant products will be launched by the end of 2023 or the beginning of 2024, marking Mbran Filtra's entry into the heavy metal wastewater filtration market, and securing a strong footing for its long-term development.

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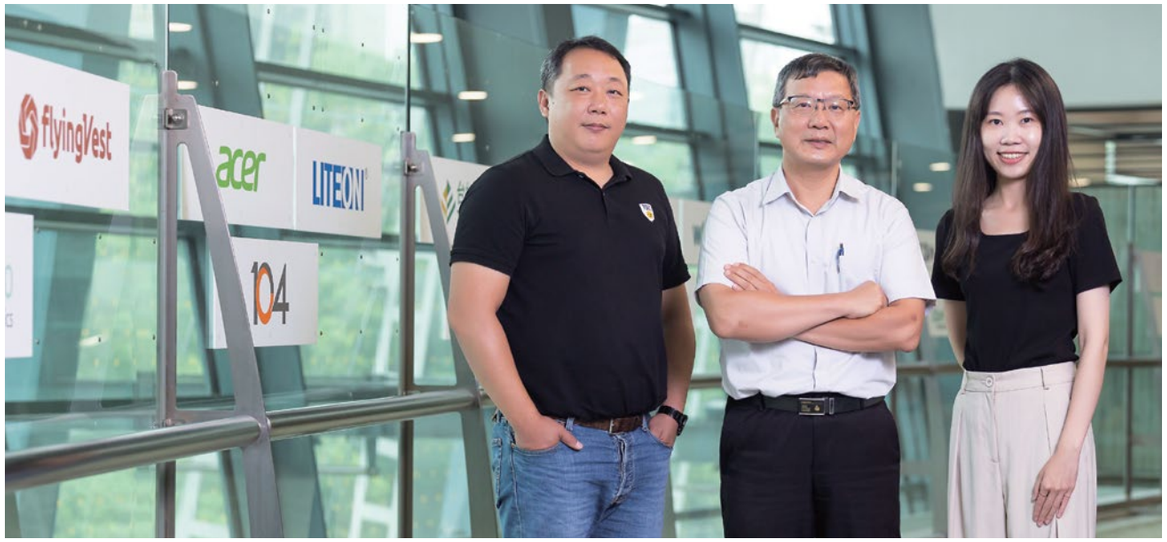

TSGC

TSGC Establishes Circular Economy Ecosystem—Exclusive Technology Solves the Challenges of End-of-Life PV Panels

The world has come to a consensus over the importance of developing renewable energies to mitigate the greenhouse effect and decrease our over-reliance on fossil fuels. In particular, solar energy has risen to become one of the primary methods of power generation. However, the relatively short life cycle of solar PV panels, which is approximately 20 years, has resulted in the accumulation of waste PV panels awaiting processing in many countries. According to a model by the International Energy Agency (IEA), 365 million tons of waste PV panels will be generated globally by 2050; as a result, the recycling of end-of-life PV panels has become an urgent issue.

TSGC co-founder and CEO Andrew Hung states that countries such as the U.S., EU, and Taiwan have been long concerned about the massive amount of waste PV panels that would undoubtedly be generated by the promotion of solar energy, and have already established regulations for their processing. California, for example, defined end-of-life PV panels as general waste in 2021 to simplify the recycling process while also severely restricting their methods of recycling by prohibiting chemical and thermal processing. TSGC's PV Circulator solution for waste PV panels features fully automated physical disassembly and is expected to begin operations in California during Q4 of this year.

TSGC founder, professor of the National University of Tainan Department of Greenergy, and director of the Solar Energy Center Yaw-Shyan Fu points out that the governments of many countries are utilizing subsidies for recycling companies to handle tasks such as disassembly and sorting. However, the actual benefits are limited to decreasing the amount of trash. In response to the sustainable development trends in recent years, the concept of circular economies has emerged, encouraging sectors to willingly manufacture products using recycled resources to meet ESG guidelines. As such, TSGC's PV Circulator solution has attracted broad interest.

Automated Disassembly of PV Panels—Recycles Nearly 100% of Waste Materials

TSGC was founded in 2022 with support from the Ministry of Education and National Science and Technology Council to focus on solving the environmental impact caused by waste PV panels. The company developed the world's first fully physical and automated PV panel recycling technology and applied it to launch the PV Circulator. The product is capable of disassembling each layer of PV panels under room temperature through methods such as automatic sorting and milling without requiring heat, water, or chemicals. Materials such as aluminum frames, glass, cell, EVA, PVDF back-sheet, and precious metals can be recycled intact.

TSGC integrated their exclusively developed artificial intelligence and Auto ML (automatic learning) technologies into the PV Circulator. Vision AI recognizes tens of thousands of global PV panel specifications, which are then applied to automatically disassemble PV panels; data such as recycling rate, power consumption, and emission reduction are automatically uploaded to a cloud platform. Finally, the equipment utilizes Web3 technology to automatically generate a free recycling resume to the owner of the end-of-life PV panel, which in addition to documenting the clean recycling, can also act as evidence to the implementation of ESG strategies.

Andrew Hung states that while there are various solutions, such as the heated blade method and pyrolysis tunnel recycling method developed by Japanese companies NPC and Shinryo as well as the EU FRELP, available in the market for recycling waste PV panels, all of them involve chemicals, heat, or landfill, which carry different degrees of environmental impacts. In comparison, TSGC's solution not only features a high recycling rate, high capacity, and zero pollution, it also meets California's latest regulations, does not require chemicals, water, or heat, and surpasses the 80% recycling rate mandated by EU's Waste from Electrical and Electronic Equipment (WEEE).

"Considering the extremely high costs for European and North American countries to transport waste PV panels, we launched a mobile version that can immediately begin on-site recycling. For example, a 500MW site in California can save nearly $2 million in transportation costs to a recycling plant 500 miles away." Yaw-Shyan Fu explains, "Given that European, American, and Japanese markets lack the technology and industry chain to recycle and reuse plastics of PV panels, TSGC has developed a technology that upcycles plastic and has partnered with Taiwan's industry chain to provide a global material upcycling service. Upcycled plastics can be used for value-added manufacturing of regenerated sneaker soles."

Strategic Deployment in the U.S., Taiwan, and Advancement into the European Market

Since its founding, the unique PV panel recycling technology developed by TSGC has won multiple recognitions, such as the InnoVEX 2023 ESG & Green Tech Award, SelectUSA Investment Summit 2023 CleanTech, top 10 of the 2023 Intersolar Award, top 10 of VivaTech x TotalEnergies, and top 10 of VivaTech's Coup de Coeur.

Andrew Hung states that throughout the company's development, their long-term partner TTA has provided multiple startup training courses, expert/industry mentoring, and led TSGC in attending major exhibitions and competitions such as CES and VivaTech. These efforts have greatly increased the international reputation of TSGC and created many business partnership opportunities.

Aside from focusing on the U.S. market, TSGC is simultaneously dedicated to developing the Taiwanese and European markets. In Taiwan, TSGC has partnered with professional licensed waste disposal companies and plans to install PV Circulators in the northern, central, southern, and eastern regions of Taiwan. It is anticipated that the establishment of an industry recycling alliance will act as a solution to many of Taiwan's problems related to processing waste PV panels. As for Europe, TSGC has received invitations from Belgium's Wallonia Foreign Trade and Investment Agency (AWEX), Switzerland's official agencies, and local companies, and expects to establish a European subsidiary at the end of 2023. The export of related technologies to the European market will solve the challenges of recycling waste PV panels in these countries.

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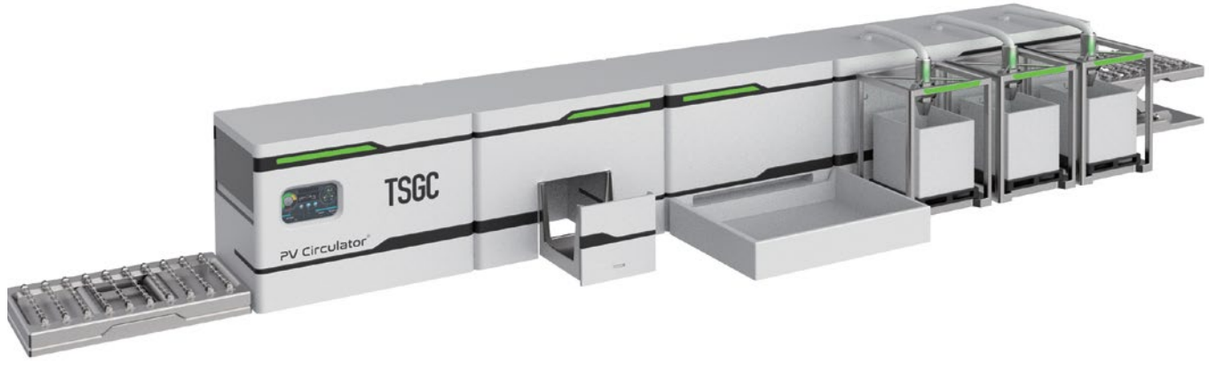

Spaceship

SME E-Commerce's Rapid Emergence has Spawned an Innovation Revolution in the Global Logistics Industry

The rapid growth of e-commerce platforms has come in the wake of changes in consumer shopping patterns. And with the recent COVID-19 pandemic, online shopping has become both a common routine and an indispensable part of life for most people nowadays. According to a report from Euromonitor International, the annual growth of e-commerce in 2020 reached 26.94% globally, and it showed double-digit growth over the next few years. This wave has driven more SMEs and individual sellers to sell their products to overseas markets through cross-border e-commerce platforms such as Amazon and Alibaba. On top of that, there are also many dropshipping companies on the market without warehousing and inventory, meaning that after the buyer places an order, the dropshipping company will deliver the goods directly to the wholesaler, avoiding the pressures of keeping inventory and making deliveries. However, regardless of the sales model, these individual sellers and SME ecommerce companies often ignore the complex process involved in cross-border sales, so their overall performance has not met expectations for growth.

Although Amazon , Alibaba, and other cross-border e-commerce platforms can provide services such as customs clearance, declaration, and logistics provider consultation, SME ecommerce companies still have to choose a suitable logistics provider on their own and complete account opening, identity verification, fill out cargo information, complete the declaration form, among other steps, before completing the delivery work. In addition to dealing with that complicated procedure, sellers must also be familiar with pricing methods, which vary across logistics companies, in order to balance cost and time. While it micro commerce not abundantly apparent, these extra considerations increase the operating burden for SME ecommerce companies, but at the same time they have promoted the rise of new logistics companies

Duncan Hui, general manager of Spaceship, an international logistics platform, said that even professional logistics teams at big e-commerce companies are not always familiar with the relative advantages of logistics companies or how each company requires its electronic forms to be filled out, so it goes without saying that it is even less possible for the teams at SME ecommerce companies to distinguish those differences. It is also the case that the freight calculation standards of logistics companies differ between corporate and individual users. That means that SME ecommerce companies often have to pay higher fees, just adding to the overall operating burden. Focusing on the operational pain points of SME ecommerce, recently emerging logistics startups have cooperated with international logistics companies while also making use of big data applications and computing, to help SME ecommerce operators shrink the delivery process, lower operating costs, and become more competitive in the e-commerce market.

Combining Big Data And AI To Complete Delivery In Minutes

Spaceship, a new Hong Kong startup, combines the experience of a professional logistics team with a logistics and software ecosystem that empowers ecommerce merchants and consumers to reduce costs while delivering a reliable and efficient end to end shipping experience. It currently works with more than 30 global logistics services to

provide a one-stop convenient delivery platform that helps consumers and SME ecommerce companies find delivery services that meet their service demands. Using innovative technology and AI, it launched an international shipment booking and management online platform, which provides one-click, real-time price comparison and booking services that is optimized for ecommerce delivery including delivery time prediction, tax prediction and more. This platform simplifies the complicated international shipping process, and greatly shortens the time to process a shipment order by nearly 6 folds.

In addition to establishing partnerships with more than 30 logistics companies, Spaceship can also use big data analysis technology to recommend the optimal delivery plan according to the user's shipmen information and automatically notify and assist users with special delivery requirements. Using its 24-hour online reservation system, users can book point-to-point logistics services in more than 280 countries around the world with a single click and with exclusive discount price; they can even arrange shipments online anytime, anywhere.

Hui pointed out that Spaceship team members, with their abundant experience in the logistics industry, are well aware of the logistics pain points for SME ecommerce in the delivery of goods. That is why, in the design of the software operation interface and logistics distribution process, they began from thinking from the user's point of view. Compared with the traditional, self-initiated delivery process, it is both more convenient and efficient, greatly reduces delivery time, and has received high marks from users.

The Highly Active Venture-Capital Scene Of Hong Kong With The Enthusiasm Of The Startup Team In Taiwan

Although Spaceship was established in Hong Kong, it also saw the bigger scale of Taiwan's market and its more mature e-commerce environment, so it didn't take long after launching services in Hong Kong that the team set up an operating base in Taiwan to provide innovative delivery services for consumers and e-commerce operators. Spaceship believes that the evaluation of VC companies in Hong Kong and Taiwan, two places where the team has fundraising experience, focuses on uniqueness and the future prospects.

Hui said that in addition to setting up a company in Taiwan, Spaceship has also cooperated with legal entities such as the Taiwan Tech Arena (TTA), and has obtained opportunities to participate in various programs and activities. It has also obtained investment from teams such as 500 Global, SparkLabs Taiwan, and Paragon Investment. Through its cooperation with the TTA, it was also invited to participate in Meet Taipei, where the Spaceship team interacted and learned from other startup teams, the energy of Taiwan startup companies making a deep impression on them. While it is growing quite fast in terms of performance in Taiwan and Hong Kong, Spaceship also plans to enter more mature markets, such as Southeast Asia, Japan, and the US, in 2023, and strive to capitalize on the business opportunities in international logistics and distribution.

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FaceHeart

FaceHeart Seeks FDA Clearance for Image-based Vital Sign Measurement Technology to Capitalize on Telemedicine Opportunities

Following the rapid spread of the COVID-19 pandemic since 2020, which has posed a serious challenge to medical facilities worldwide, governments have come to realize how precious medical capacities are. As such, the policy focus of government agencies and medical institutions has to gradually incorporate mechanisms that reflecting patient risk levels as to optimize limited medical resources. FaceHeart's image-based vital sign measurement technology has the potential in becoming part of a home healthcare system that facilitates the efficiency of medical resource allocation in society due to its ease of use and high accuracy. As a result, FaceHeart's technology has recently gained the attention of the medical industry. According to Jerry Chang, president of FaceHeart, the company has submitted a clinical trial application to the FDA in 2022. If the process goes smoothly, the company will receive certifications between 2023 and 2025 for vital signs measurements. It would be able to capitalize on ample business opportunities arising from the new era of medical care.

FaceHeart's image-based vital sign measurement technology can measure heart rate, blood pressure, blood oxygen, respiration, and other physiological data of a patient in a home environment by simply using a camera on a smartphone or tablet that captures the patient's face. Wearable devices such as smartwatches or wristbands used for an extended period of time or medical measurement equipment operated by professionals with the help of a third party are therefore, not required. Furthermore, all of this can be done with an accuracy that meets medical standards. Therefore, the technology is well suited for telemedicine applications. Jerry Chang pointed out that image-based vital sign measurement devices can be set up easily, accurately and quickly at home to capture patients' vital signs. In tomorrow's medical system, such devices could be used by patients with chronic diseases—they are able to recover at home if their physiological data is normal, or visit the hospital if the data is abnormal as directed by a physician, thereby optimizing the allocation of healthcare resources.
In addition to appropriate allocation of healthcare resources, FaceHeart's image-based vital sign measurement technology has the potential to be included in the Medicare coverage. Jerry Chang explained that as part of the U.S. Department of Health and Human Services, the Centers for Medicare and Medicaid Services updated its Medicare coverage guidelines in 2018 to include certain remote patient monitoring (RPM) services in the list of insurance benefits. FaceHeart's image-based vital sign measurement technology can be used for RPM covered by Medicare. For example, the technology can continuously measure and record patients' vital signs during various treatments, which is helpful to medical facilities in collecting relevant data and facilitating the operation of subsequent medical insurance mechanism. FaceHeart could benefit from becoming a Medicare device provider in two ways.

First, the company would see an increased volume of sales, and second, insurance carriers would be made liable to process payment for the products, solving subsequent cash flow issues.

FaceHeart's Technology Attracts Attention of Medical Community for Ease of Use and High Accuracy

The main reason for industry interest in FaceHeart's image-based vital sign measurement technology is its ease of use and high accuracy. These two key features are, in turn, a product of the company's professional team and years of clinical trials.

Jerry Chang also pointed out that the team members serving as the backbone of FaceHeart have all been students or graduates of the College of Electrical and Computer Engineering of National Yang Ming Chiao Tung University, excelling in digital signal processor (DSP) technology. As a result, the team is able to eliminate noise interferences, which are common when using DSP, and elevate the accuracy of consumer electronics, such as smartphones and tablets, to that of medical devices. FaceHeart's team is also supported by two heavyweight consultants: Dr. Jui-Sheng Sun, superintendent of the Trauma and Emergency Center of the China Medical University Hospital, and Dr. Gau-Jun Tang, superintendent of the National Yang Ming Chiao Tung University Hospital. Together, they ensure that FaceHeart's technology meets the needs of the medical industry.

To bolster IRB's and clinical trials, FaceHeart has also collaborated with National Taiwan University Hospital, Taipei Veterans General Hospital, Taipei Chang Gung Memorial Hospital, and En Chu Kong Hospital. Collecting more than 100 million medical records, the company used this huge amount of data to create a highly accurate measurement system based on the AI algorithm developed by FaceHeart's team.

Currently, FaceHeart is looking to expand its global market presence. In 2022, the company applied to the FDA for a review of its technologies that measure vital signs, such as heart rate, blood pressure, blood oxygen, and respiration. For each technology that passes the review, a device that measures the corresponding vital sign will be made commercially available. In the future, the company plans to apply for two additional important certifications: CE in the EU and HSA in Singapore, which will allow the company to export its technology overseas. In this regard, Jerry Chang is deeply appreciative of the policy support from the Ministry of Economic Affairs and the National Science and Technology Council. In particular, after participating in the Value Creation Program, FaceHeart was able to take part in technology fairs such as CES in the U.S. and VivaTech in France with the help of Taiwan Tech Arena (TTA). Jerry Chang also pointed out that FaceHeart has focused on overseas markets from the beginning. However, as a startup company, its resources are limited. Therefore, participating in these two major trade shows not only allowed the world to see FaceHeart and made its technology more visible, but also gave exposure to the team members. They are able to gain an understanding on market trends, as well as competitors' products. In addition, FaceHeart used the opportunity to develop various business models and explore further application opportunities. As a result, FaceHeart is able to improve the competitiveness of its products and take advantage of business opportunities in smart medicine in the post-pandemic era.

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NeuinX

NeuinX Seizes Sports Image Analysis Opportunities and Secures CES 2023 Innovation Awards

With the aim of attaining outstanding results in competitions, a global trend of combining sports and technology has ensued. Various sensor components are being combined and utilized to collect athletes' data from competitions or training sessions to serve as reference for future improvements. Industry output has reached new records due to recent developments in AI as well as the popularization of sports technology applications in the general public. A Data Bridge Market Research report points out that industry output will reach US$47 billion in 2029 and become a hotly contested space amongst corporations; the market will also release many smart fitness products designed for the general public.

The massive industry output of this market will naturally attract Taiwanese enterprises that boast advantages in the field of information and communication technologies. For instance, the National Science and Technology Council's Taiwan Germination Program has subsidized NeuinX, an independent research team from National Tsing Hua University. The team has currently released the sport image smart AI analysis platform NeuinX Play. With support from Taiwan Tech Arena (TTA), NeuinX attended its first Consumer Electronics Show in 2023 and won the CES 2023 Innovation Awards. Resulted in massive attention from the U.S. sports technology industry and laid a solid foundation for its entry into the U.S. market in 2024.

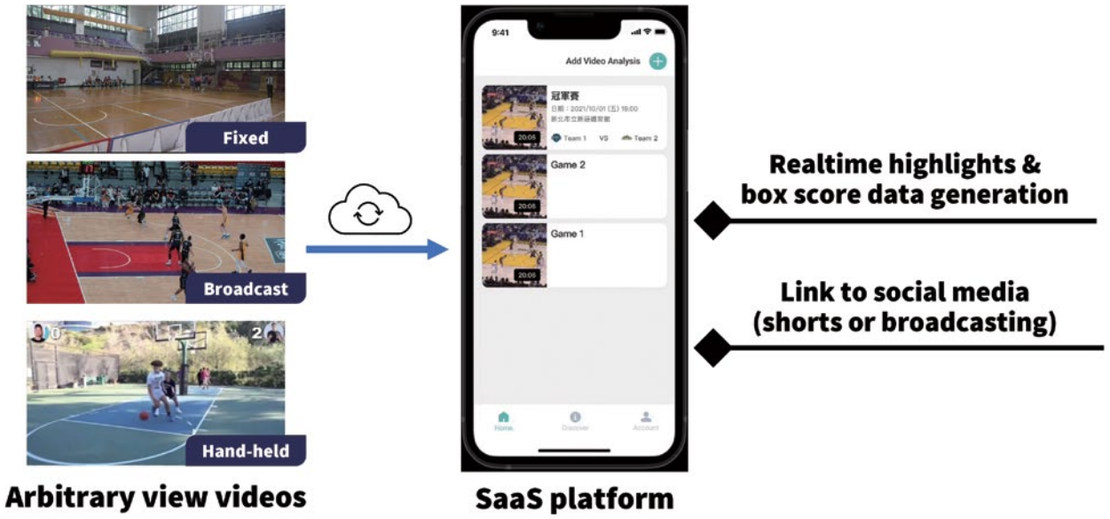
Tsung-Hsun Tsai, the CEO of NeuinX stated that the early development of sports technology in the U.S. has resulted in diverse solutions and technology related products for basketball, baseball, and golf. TTA's support in attending the CES 2023 not only increased exposure for NeuinX, but also led to exchanges with the U.S. industry, which will be greatly beneficial for the company's future developments. In fact, TTA offered various consulting services prior to NeuinX's visit to the U.S. and became one of the driving forces that allowed the company to win an award.

NeuinX technical consultant Min-Chun Hu stated that aside from their support for CES 2023, TTA also provided mentorship courses in marketing, financial planning, and governance designed for startup companies, which paved the way for the sound, long-term development of NeuinX. In addition, TTA hosted many matchmaking meetings that allowed NeuinX the opportunity to earn the attention of even more investors.

In-house Developed AI Image Analysis Targets Students and Small to Medium-Sized Sports Competitions

The active efforts of various companies have resulted in many sports image analysis platforms on the market that mostly require multiple professional film equipment to utilize. As such, full solutions are often extremely costly and can only be utilized by professional sports teams or leagues. In a bid to drive the commercialization of cutting-edge sports technologies and establish itself as a premier global sports service provider, NeuinX, founded in 2023, brings over 15 years of accumulated expertise in sports image analysis with many high-level international conferences and journals. NeuinX's technology was used by Taiwan's National Team in the 2021 Tokyo Olympics and the solution won the 2021 Taiwan Sports Technology Application Award.

In order for student leagues and small to medium-sized competitions to enjoy the brand new experiences delivered by sports technology despite their limited budgets, NeuinX launched the subscription based NeuinX Play service in 2023. Users can simply upload game footage filmed using smartphones and cameras or TV broadcast footage of basketball games to the cloud, and the system will automatically analyze players' shooting locations and movement patterns. Additionally, NeuinX Play includes a built-in automatic scoring platform that records each shot and determines if it has gone into the net. The system automatically records scoring information for each player, thereby drastically reducing the cost expenditure of recording scores, which is traditionally performed manually. Furthermore, in response to the emergence of social media platforms such as Instagram, Facebook, and YouTube, NeuinX Play automatically clips highlights, which can be sent to a predetermined platform, thereby satisfying the requirements of league marketing activities.



"To verify the feasibility of NeuinX Play, we partnered with a renowned Taiwanese basketball league and multiple agencies in 2023, and conducted verification test through 10 actual games held in Taipei Heping Basketball Gymnasium and Xinzhuang Gymnasium. The results evidenced that the system could accurately analyze the shooting process of athletes and fully document their scoring status." Tsung-Hsun Tsai explains, "In the future, we will provide additional functions such as automatic detection of data such as blocks, steals, and rebounds to better meet the functionalities required to record actual competitions."

NeuinX Stat Will Enter the U.S. Market by 2024

Amidst intense competition, the market sees an influx of various sports video analysis platforms, although the majority require expensive integration with specialized camera equipment, consequently restricting their adoption mainly to professional teams and leagues. In a move to penetrate the sports technology sector, NeuinX introduced the NeuinX Play Cloud Service in 2023, marking the company's inaugural venture into the field The award winning NeuinX Play that won CES 2023 Innovation Awards is currently used in National Tsing Hua University basketball court and received many high praise. Tsung-Hsun Tsai stated that in order for more student teams and small to medium-sized leagues to enjoy the advantages of sports technology, NeuinX expects to release NeuinX Stat in 2024, targeting student leagues in both the U.S. and Taiwan. In addition to retaining and enhancing all functions of NeuinX Play, this version will also provide a field for on-site personnel to fill in statistical data; XR data visualization and True View visualization can also be applied to basketball strategy training and game analysis.

In addition to student leagues, NeuinX is also targeting the strong demand for AI sports image analysis from professional athletes and leagues. The company expects to launch NeuinX Train in 2026, which will provide 3D action simulation and an online training system, providing athletes with a better understanding of their athletic condition and reference data for planning future training sessions, thereby improving their overall performance in professional basketball games.

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TAIWAN TECH ARENA Event Summary From Jun. - Aug. 2023

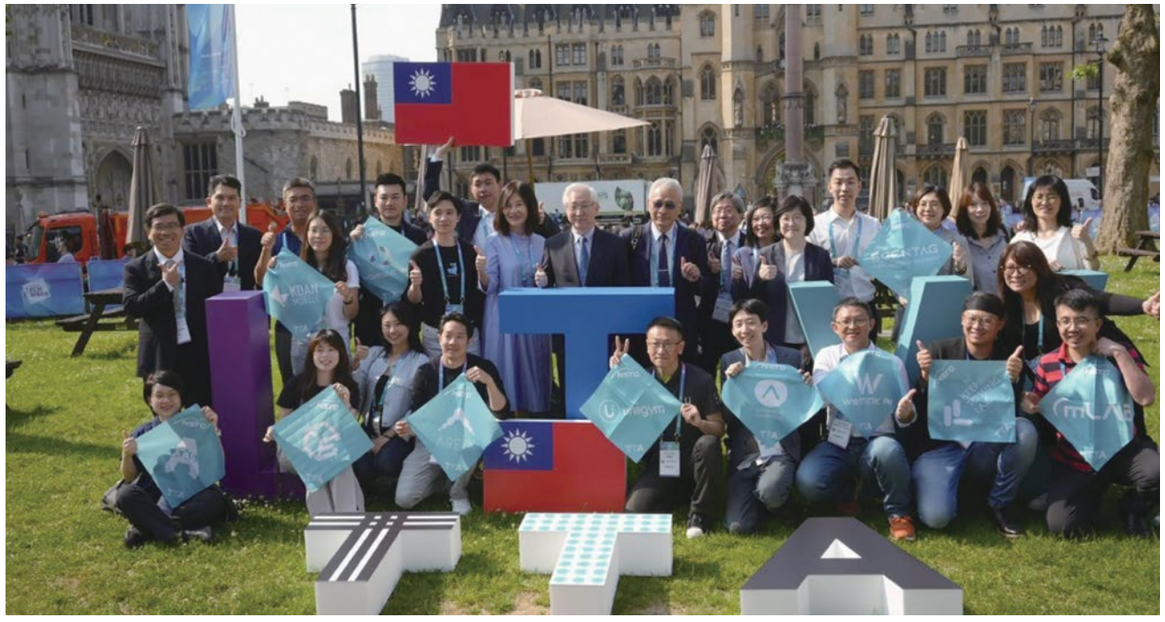
TTA Startups Shine at London Tech Week and VivaTech 2023

The effort by Taiwan Tech Arena (TTA) to enhance the global competitiveness of high-tech startups from Taiwan is commendable. By participating in prominent events like London Tech Week and VivaTech, TTA is providing a platform for these startups to showcase their innovations, connect with potential partners, investors, and customers, and gain exposure on the international stage.

The decision by Minister Wu Tsung-Tsong from the National Science and Technology Council (NSTC) to designate Director General Andrea Hsu to lead the Taiwan delegation indicates the government's commitment to fostering innovation and supporting the growth of the high-tech sector. The involvement of the Ministry of Digital Affairs and the Ministry of Economic Affairs underscores a collaborative approach to driving technological advancement and economic progress.

The diverse range of startups participating in these events, spanning fields such as AI, food and health technology, net-zero emissions, and digital technology, highlights the breadth of innovation taking place in Taiwan. This diversity not only showcases the country's capabilities but also positions Taiwan as a hub for technological advancement across various sectors.

The achievement of having three TTA startups shortlisted for London Tech Week's "Elevating Founder Challenge" and "Coup de Coeur" is a significant milestone. These recognitions validate the quality and potential impact of their products in the health technology and AI domains. Such acknowledgments can attract attention from global investors, customers, and collaborators, contributing to the startups' growth and success.



TTA Global Forum InnoVEX 2023

Generative AI has sparked a revolution, with industry leaders like Google, Microsoft, IBM, and NVIDIA driving advanced models in healthcare, marketing, and entertainment. At InnoVEX 2023, Julie Mathis, GM of Tenstorrent, a pioneering AI software and chip startup, shared insights. Andrew Liu from NVIDIA Taiwan, along with TTA Black Card members Kai Huang, Jameson Hsu, and Phil Chen, explored generative AI's transformative trends across industries.

Meetup! The Trend of New Generation Manufacturing

TTA South hosted the "New Generation Manufacturing Trend Meetup," featuring insights and smart manufacturing tech from startups and enterprises, including Merck, MIC, and Mirle, and exceptional startups We Jump, Arieco, and Yajantech. Let's collaborate to build a thriving #smartfactory ecosystem in southern Taiwan. TTA is dedicated to inspiring Taiwan's startup scene and driving impactful change.

TTA Accelerator x Academic Entrepreneurship Community Matching Event @ NCHU, NCKUav

TTA held "TTA Accelerator x Academic Entrepreneurship Matching Events," the two events involved professor-level entrepreneurship teams and researchers and included in-depth discussions with TTA Accelerators. The event attracted both physical and online participants, and diverse teams including agricultural biochemistry and advanced machinery.

TMU x BE x SCHS Demo Day : The Next HealthTech Frontier Transforming Hospital

BE, TMU Biomed Accelerator, and Show Chwan Healthcare System co-hosted the inaugural hospital medtech startup Demo Day. The event showcased 20 domestic and international teams unveiling breakthrough technologies such as AI, 3D printing, minimally invasive surgery tools, wearables, and more. Expert panels discussed global healthcare trends, fostering connections in the international biomedical startup ecosystem.

500 Global in Taiwan: Go Global Showcase

500 Global organized the event for startups, investors, corporates, and ecosystem stakeholders, emphasizing meaningful connections, innovative ideas, and Taiwan's startup potential. Featured founders and CXOs from AmazingTalker, Gogolook, and PopChill discussed global fundraising, M&A challenges, and the journey from inception to IPO.

Meetup! Green Economy Scaling Up

TTA South organized the "Meetup! Green Economy Scaling Up" event, inviting experts to explore green business opportunities. Esteemed guests included Mr. Luke Lee, President of Texas Instruments Taiwan Limited, and Mr. Larry Wei, Chairman of the Taiwan Association of Machinery Industry. TTA South's exceptional startup leaders, Mr. Mark Lin from Blade Hydrogen Green Technology Co., LTD., and Mr. Peter Lin from Grace Connection Microelectronics Limited, also participated. This event aims to foster collaboration between manufacturers and startups, driving a green economy for a sustainable, carbon-free future.

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EMPOWERING GLOBAL TECH STARTUPS