Chen-Kang Su – Deputy Director-General, Southern Taiwan Science Park (STSP)

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The Southern Taiwan Science Park (STSP)'s Chen-Kang Su discusses how STSP has played a key role in bringing innovation to Taiwan, how collaborations between academic institutions and industry are helping to shape and inspire further innovation in the nation and what strategies STSP is employing for continued growth.

Can you briefly describe Southern Taiwan Science Park (STSP) to our international readers?

The science park has played an important role when it comes to innovation in Taiwan. There are currently three major science parks in Taiwan under the supervision of the Ministry of Science and Technology (MOST). STSP has two campuses, the first is in Tainan which is also our largest, and the second is in Kaohsiung City. We currently have over 230 companies operating in STSP, furthermore, last year the overall turnover for all of these companies combined was over NT 800 (USD 25.5) billion and the number of employees was 74,351 people which are fantastic to see! I would say the most prominent industry cluster within our park is the semiconductor business; then it would be technology such as optoelectronics and renewable energy. The third-largest cluster is in precision machinery. Biomedical and digital health industries are emerging.

Our objective in Taiwan is to focus on networking and collaborations with both research institutes and universities across the nation. This is what we call the triple helix for innovation: combining academics, with industry and government, which means that we encourage the intellectual property (IP) from academic institutions straight through to commercialization of a product. We are truly a one-stop-service-shop, and it is our job to help the companies bridge the gap from start-up to a much larger organization. For example, some of the companies within the science park have grown substantially, such as the Taiwan Semiconductor Manufacturing Company (TSMC).

You have several programs in the Science Park, for example, the smart biomedical industry cluster program and industry-academia collaboration. Can you tell us about these and other programs that you currently have ongoing?

The MOST strengthens the integration of academic research with industrial development. MOST provides supports and funding to academia; meanwhile, it reinforces R&D in industry, assists startups and supports industrial development by establishing science parks. The Southern Taiwan Science Park Bureau encourages networking between academia and industries and provides resources to foster collaborations and partnerships. Furthermore, we hold seminars in our science park that encourage company employees in sharing their experience, ideas, and information with university alumni. These programs cover diverse areas from the smart biomedical sector to even aerospace.

How have you seen the encouragement for collaborations evolve over the years?

The Southern Taiwan Science Park Bureau has many programs that help to stimulate and encourage cross-collaboration. In the science park, we also have a talent training program for our companies' employees; moreover, we provide opportunities for students, from junior in university to Ph.D., to intern for companies. The above-mentioned talent cultivation program is intended for students to learn about the organizations operating in the science park and aids in providing a fantastic learning resource for the students. In addition to this, we also offer involvement days in the summer for students to experience what life is like working in the STEM fields. One of my primary goals for the future is to highlight the science park's working environment. We not only want to create an industry cluster, but we also want to harmonize the overall environment and make it a cohesive network for innovation. Finally, we would like to create a healthy lifestyle for our company employees.

You mentioned two other science parks in Taiwan, namely Central and Hsinchu, can you tell us about the strengths STSP has compared to the others?

Concerning basic functions, most science parks in Taiwan are similar. The main similarities are in providing a one-stop service to our companies and encouraging industry and academic collaborations. Furthermore, the three also have some focus on semiconductor technology. That being said, there are a few key areas which help to differentiate STSP. Namely, the biomedical device and aerospace industries. In the aerospace sector, for example, we have some very strong companies, who are producing landing gear, and turbines for airplanes. Another great example of value addition is simple screws. In the southern part of Taiwan, there are many traditional screw manufacturers. With our supports to upgrade their technologies, these manufacturers are able to produce dental implants. Furthermore, we are integrating existing resources to combine the applications of ICT, AI and VR/AR to move towards smart biomedical industry. One of our tenant companies, specializing in dental implant 3D surgery guidance, are currently experimenting to combine optical positioning and medical software technology to develop a Real-time navigation system for brain and craniofacial surgeries. With AR glasses, it is capable to show the real-time CT image to the doctor during surgery.

We are very careful when developing different types of clusters, as they need to have a basis on current industry trends. This in turn makes it easier for the products to become applicable to other industries. Whereby if they need to change their business model or jump to another advanced technology, they have the freedom to do so. Another important factor to the success of the STSP is acquiring talent. There are over 30 universities that surround the park and having them so close by is a great resource for us to draw from and cultivate future talent. I want to emphasize that although we are a government agency, some people think there is a lot of bureaucracy that comes with this. However, our mission is to serve the stakeholders and I would prefer people to think of us as a resource to support the sciences community, rather than simply a government agency.

There is a lot of competition in bringing new ideas and IP innovation to Asia. What does Taiwan have that will attract more innovation to come here as opposed to somewhere else?

Taiwan has a strong information and communication technology (ICT) base, for example, at STSP we have the most advanced semiconductor industry. Artificial intelligence (AI), big data, internet of

things (IoT) and cloud computing all need semiconductors. Because Taiwan is so strong in ICT technology, we will be able to attract new ideas and start-up teams that will choose to develop their business and career here. Furthermore, Taiwanese companies can customize services for different business needs, which makes us very competitive.

When starting an open innovation ecosystem in an area, there is a need for top talent, fundraising capabilities, and an offer of an ecosystem where many different fields can thrive. With all these factors, a country can cultivate an innovation hub. In comparison to other science parks both domestically and internationally, our objective is primarily the same, however, where STSP differs is the ability to customize our service to team needs. In my opinion, one of the reasons why TSMC is so successful is that they established Open Innovation Platform, which reduces design barriers, empowers innovation throughout the supply chain and promotes the creation and sharing of new revenue and profits. Around the world, there are many innovation hubs and I believe if we can connect these centres, a company will have first-hand access to information and know-how which can be used and grown at a much faster rate.

What is the strategic direction STSP is looking to take to continue building open innovation and driving next-generation industry in Taiwan?

We want to play an important role in innovation and need to meet future trends for industrial development whilst coping with the changing environment. Furthermore, there is a need to prepare our industrial development training in AI, IoT, cloud computing and so on. Therefore, we have continuously invited companies to invest in the science park and from here we can choose which companies may contribute the most to our mission.

We do this through a review board that looks at the financial, technological, talent and the future prospect of companies. It is a useful process as it allows us to identify organizations that would fit into our science cluster and contribute the most. We are also in talks to collaborate with the National Cheng Kung University, one of the top universities in Taiwan that has various connections with high ranking global institutions. Many world-renowned universities enter into these types of collaborations, such as the University of Cambridge which is partnered with the Cambridge science park. Harvard and MIT also have similar spillover effects for regional and global innovation.

Why were you inspired to come to STSP and what are your future aspirations?

Around 15 years ago, I was working in a construction and planning agency. I then came to the science park and saw such great potential here. There are many very well-educated people and the talent education is fantastic. I would say these are the key reasons that inspired me to come and work for STSP. In terms of my future aspirations for the park, we are interested in attracting more international talent to diversify the community which will, in turn, contribute to innovation.

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