

Build the smart and healthy Taipei

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Urbanization has become the development trend around the world, and sustainable development and efficiency improvement increases demand for and drives smart city development. The phenomena have become the critical issues in Taiwan, too.

According to estimates by the United Nations, 2/3 of the world's population (about 5 billion people) will live in cities by 2050. In 2030, more than 43 giant cities with more than 10 million people each will appear. As the population density of cities continues to increase, new challenges in urban housing and governance such as transportation, safety, pollution, and energy depletion will surface.

In addition to creating economic value, smart cities can also promote the integration of culture and history, and help the development of a sustainable environment, thus driving the world to contribute to the development of smart cities (according to the market size data of CB Insights, the market size of global smart cities in the next 6 years is expected to reach US\$1.4 trillion).

The paradigm shift of smart city development around the world, the three major trends of smart cities: people-oriented, public participation, ecosystem. These trends of the future also bring a great opportunity to Taipei City.

There are three main directions for the trend of smart cities in the future, including people-oriented, public participation, and ecosystem. People-oriented refers to solving the problem of local development as the important thinking of the smart city development strategy, emphasizing the needs of the people as the starting point. Each city aims to create its own unique smart city based on its own needs and characteristics. Public participation refers to the transition from large companies to the expansion of popular participation, and with the PPPP (Public-Private-People Partnership) model, provide the public with the co-creation of value and shared profits. Ecosystem refers to the use of an open platform system to promote the entrepreneurial ecosystem. Through an open platform system, the government provides an open platform environment and open data to promote citizen investment to form new creations, and to build a network of experts from multinational corporations and governments at all levels, allowing the exchange of ideas of various groups to promote the entrepreneurial ecosystem to stimulate cross-border and cross-domain innovation and entrepreneurial drive.

The future smart city strategy development of Taipei City should continue to

solve local issues as a priority to improve city operations and the livelihood of the people.

Taiwan actively promotes the construction of smart cities and assists local development of smart city related applications

The central government actively promotes the construction of smart cities. The Industrial Development Bureau, MOEA, promoted the 4G broadband smart city applications program in 2015-2017 and invested NT\$5.82 billion to drive the sustainable development of smart cities in Taiwan with 4G broadband applications. The 2018-2020 Universalization of Smart Urban and Rural Life Applications Program is divided into innovative services and local innovation to promote smart urban and rural development through central elections or local proposals. A total of 71 proposals for local innovation were collected; the proposals focus on the fields of health, tourism, and transportation (15/12/12 cases respectively; there were 22 cases that focus on health for the regional category). It is hoped that the smart city strategy will solve local problems improve issues related to city operations and people's livelihood, make full use of local creation and performance opportunities, verify system solutions during the implementation period, attract international cooperation, and ultimately create opportunities for exporting the whole program to the international market.

In the development of smart cities, Taipei's policy has been at the forefront; the next step is to lead and assist smart cities in whole case export opportunities

The Taipei City Government established the Taipei Smart City Project Management Office (TPMO) in 2016 to promote smart cities with the goal of assisting innovative industries, strengthening public-private partnerships, and changing government culture. Taipei City focuses on five major facets, which includes smart transportation, smart public housing, smart health care, smart education, and smart payment. Through the Proof of Concept (PoC) mechanism, sites will be available for realizing and proving innovations.

Taipei's policy has been at the forefront (including the public participation bottom-up model, experimental fields, and project management office), and should make further use of science and technology diplomacy to help create full-solution export opportunities, such as:

- Participate in the Living Lab pilot overseas, expand the market together with partners to establish multi-party exchanges in emerging markets, utilize bilateral talks between Taiwan and other countries, and establish a government and industrial exchange and visit platform to lay a foundation for expanding overseas

business opportunities.

- Organize and participate in international smart city forum activities; increase the exposure and export opportunities of solutions through international competitions, exhibitions, and other activities.
- Other roles: information and communication infrastructure, talent cultivation and activation, loosening of regulations and systems, and innovation.
- Recruit key vendors of internationally renowned smart cities, activate the overall smart city ecosystem, and promote industrial development and the solving of urban problems at the same time.

For example, Taipei City Government realized that the residents sometimes missed garbage/ recycling collections. Therefore, based on the button-up model, the government worked with Hao-Yang Environment Technology Ltd. and established the experimental station of Trash Disposal and Recycling Integration System, “iTrash”, in the Yonggu convenience parking lot in Linyi Street, Zhongzheng District. The iTrash, combined with smart payment function such as Easy Card, provided 24 hours self-service for garbage/recycling collection. After the experimental period, the iTrash was proven to save the residents’ time effectively and hence received not only international media coverage more than 30 times but also the 2019 Smart City Innovative Application Award in Taiwan Smart City Summit & Expo (SCSE), which is the biggest smart city/IoT application exhibition in Asia.

Another example is the experimental project of "smart street lights", which attempt to make the popular street lighting network a powerful IoT platform. Cooperating with the firm like Chunghwa System Integration, IPSecures Corporation, and light space Inc., Taipei City Government set up 12 smart street lights in Neihu District. These street lights were equipped with multiple applications including safety warning, traffic flow and flow count, parking space detection, environmental sensing and electronic billboard information push notification service. This project was nominated for the Smart City Project Award in 2017 Smart City Expo World Congress (SCEWC), the world's leading event for global cities, in Barcelona, Spain. It was also the first time that Taiwanese project received the nomination of this award.

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According to the analysis of the Industry, Science and Technology International Strategy Center of ITRI, the missing piece of Taipei’s smart city proposal is smart health. In the future, the policy promotion can make proposals in this direction. In the future, the goal of building smart and healthy cities can be set to strive for relevant resources (such as the Universalization of Smart Urban and Rural Life Applications

Program of the Industrial Development Bureau) to promote development.

Building a healthy city is bound to require many policies that impact existing behaviors, such as bicycle lanes and sidewalks that limit existing driving spaces, so long-term municipal persuasion and construction projects are needed, and technology is a good, objective benefit generation tool. For example, Copenhagen, Denmark, uses the cycling counter to capture the cycling behavior of citizens or tourists (for example, the cycling counter can prove that the increase of bicycles and the benefits of bicycle lanes is the same as cars; when bicycle riders ride past streets with less bicycle traffic, they can see that the number of riders has increased by one, which is encouraging.)