

Friday, February 18, 2022

## Shanghai harnessing 'digital twin' technology to improve city operation

Zhu Yuting

Shanghai has adopted the advanced "digital twin" technology for city operation and management, the Shanghai Urban Operation and Management Center announced on Tuesday.

The "digital twin" concept refers to a virtual platform or model that accurately reflects the real-time physical objects and system in the real world. This means that every element and object in the city can be found in its digital reflection in a digital system by simple clicks on a screen.

It is also a response to China's 14th Five-Year Plan (2021-2025), which has listed digital twin construction as an important part of improving the city's management capacity.

From residential complexes to local governments at all levels, all have tried using the technology to explore a more progressive way to operate and manage the city.

Some districts, such as Jiading and Hongkou, as well as the Pudong New Area, have selected their typical and pilot areas to build the digital models.

They have developed digital platforms to reflect real objects and their information, such as buildings, street lamps, pipes as well as plants.

For example, Huamu subdistrict in Pudong is well known for its super big neighborhood, covering about 21 square kilometers with 200,000-plus residents, including 12,000 expatriates.

The "digital twin" technology has been used in pandemic control and prevention following the COVID-19 outbreak in 2020, according to government officials in the subdistrict.

The neighborhood at 186 Mudan Road was locked down after two residents tested positive with COVID-19 in November and December, respectively.

After receiving the information, a subdistrict official on duty logged into the digital twin-city platform and provided the local center for disease control and prevention with related information for epidemiological investigation.

"Not only the basic personnel information, we could clearly see the complex layout and floor plan of each building, which is very useful to set out pandemic control plan,"



A digital image of Huamu subdistrict in Shanghai's Pudong New Area.

said Li Jianing, an official of the subdistrict.

"The most important feature of the digital twin city is that real things, such as poles, boards, trash cans that we see in the real world, have a virtual reflection in the digital world in about a total of over 100,000 elements of different kinds, which is our plan to collect by 2025," Li revealed.

Hongkou and Jiading districts have adopted the digital

concept on urban management in their Yunfang Residential Complex and Beiguan Village, respectively.

Their digital platforms have shown powerful function and efficiency in managing refuse disposal and living safety issues such as e-bike charging.

Meanwhile, other pilot areas in the city will focus on information security, especially on privacy protection, during data collection and the system

development.

"Digital technology is a neutral concept," said Zhu Hai, chief of the urban operation and management center in Pudong.

"We need to keep a close eye on how far we can go in using this technology. In addition to making good use of digital technology to explore people-oriented services, we will also pay attention to data protection and prevent data breaches."

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