



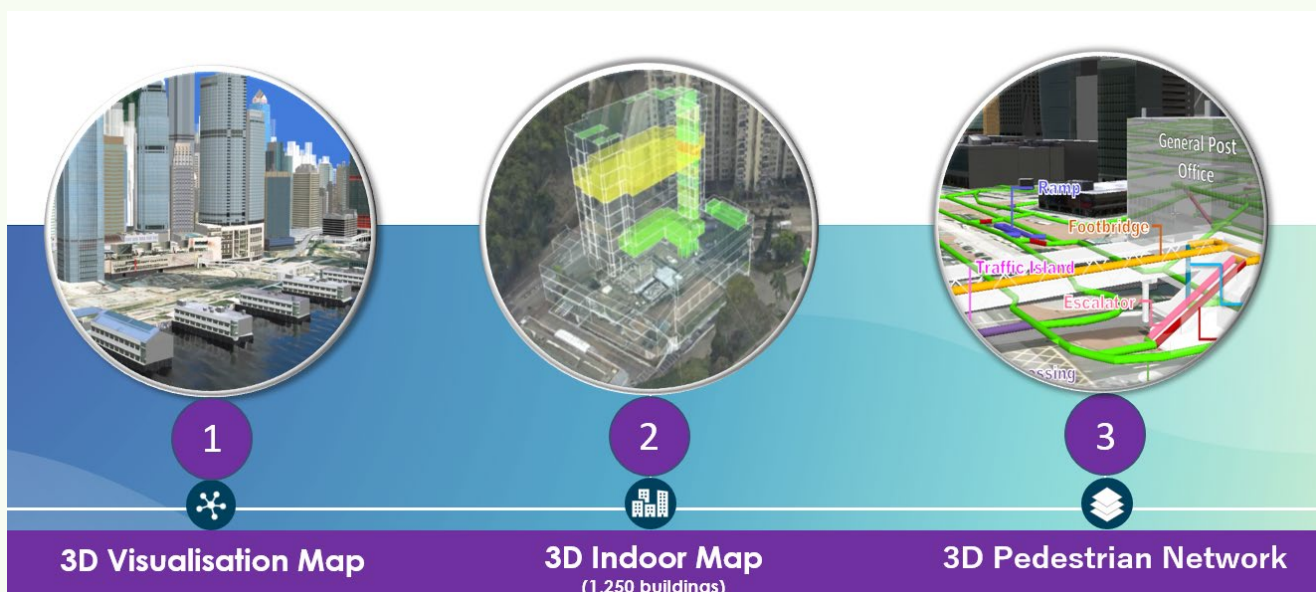
3D DIGITAL MAPPING

To cope with the development of smart city in Hong Kong, the Lands Department is producing a set of 3D digital maps covering the whole territory, which includes the 3D Visualisation Map, the 3D Indoor Map covering the accessible interior of 1 250 buildings and structures, and the 3D Pedestrian Network data over the territory.



In 2017, the Smart City Blueprint for Hong Kong (“Blueprint”) set out the overall framework and strategy to use innovation and technology to address urban challenges, enhance Hong Kong’s attractiveness to global businesses and talents, and inspire city innovation and sustainable economic development. The Blueprint included the adoption of Building Information Modelling (BIM), the development of Common Spatial Data Infrastructure (CSDI) and the development of 3D Digital Map.

The Lands Department (LandsD) has been progressively developing three 3D digital map products, namely, (i) the 3D Visualisation Map showing exterior features of terrains, buildings and infrastructures; (ii) the 3D Indoor Map covering the accessible interior of 1 250 buildings and structures; and (iii) the 3D Pedestrian Network data covering the whole territory.





3D Visualisation Map

The 3D Visualisation Map is being developed by phases. In the first phase, the LandsD identified Kowloon East, a district of about 24 sq km, as a pilot project area to generate a high-quality 3D Visualisation Map. The dataset covering the Kowloon East region comprises individualised models of about 6500 buildings and about 420 infrastructures including flyovers, footbridges and subways.



3D Visualisation Map (Individualised models)



3D Visualisation Map in Kowloon East

The 3D Visualisation Map developed by the LandsD is generated by integrating the oblique aerial photos collected from aerial platforms and the images and laser point cloud data

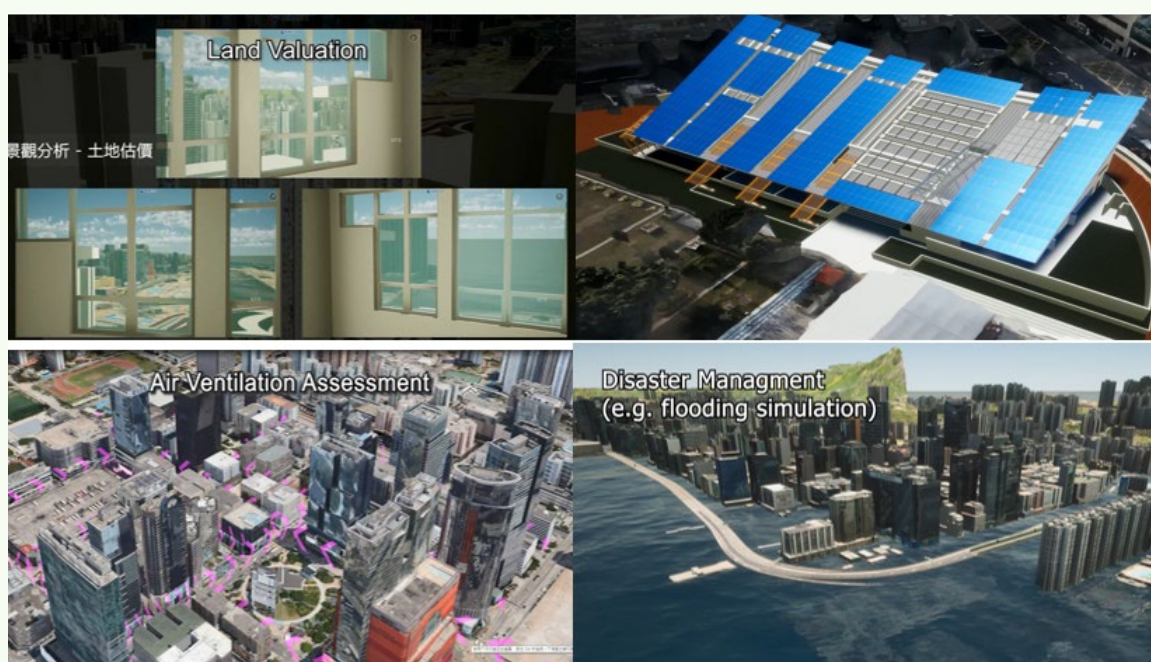


collected by vehicle-based and backpack mobile mapping systems. The 3D Visualisation Map has high resolutions and are true to life with an accuracy of around 0.3 m (horizontal) and 0.5 m (vertical).



Data capturing by different survey methods

The 3D Visualisation Map supports a wide range of functions including urban planning, land management, project development, environmental studies, traffic studies, landscape design, as well as other technical assessments. It also promotes the development of various applications and enables users' better grasp of the spatial information of a specific location. The LandsD will continue to press ahead with the development of 3D Visualisation Map for other regions and release them for public use upon completion.

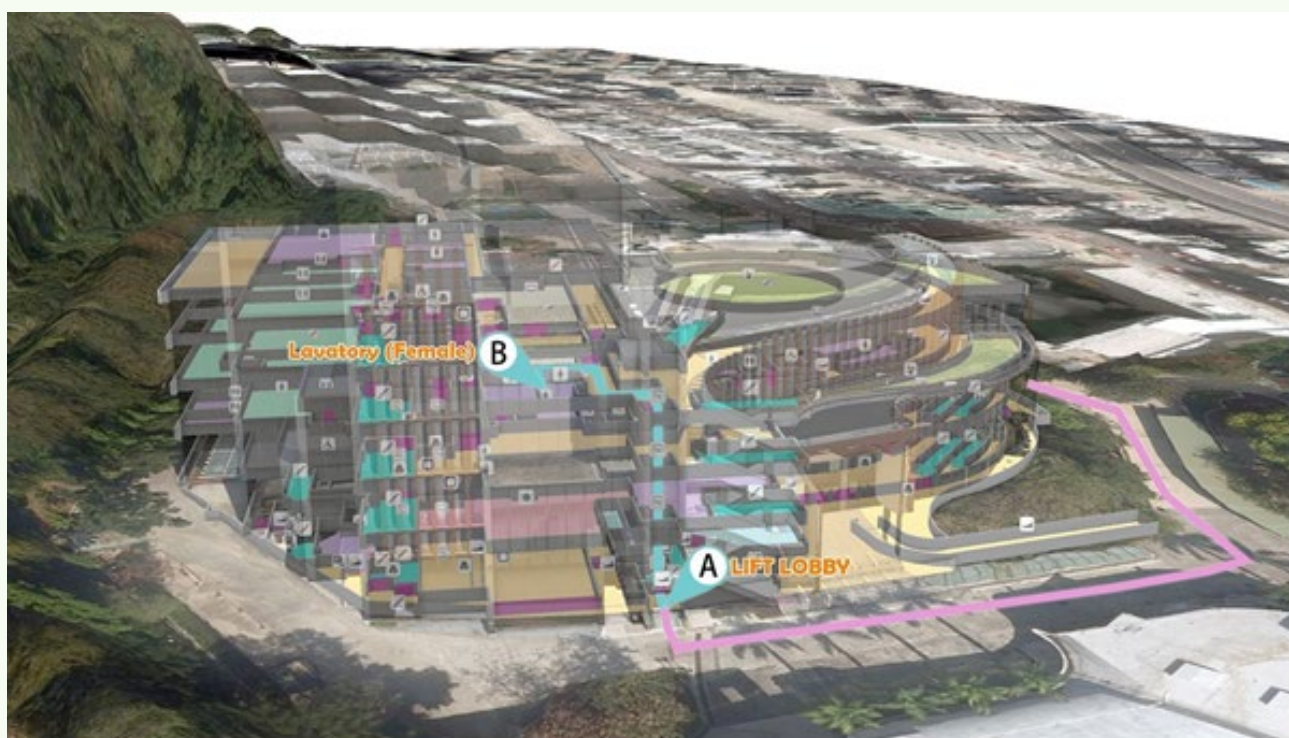


Applications of 3D Visualisation Map



3D Indoor Map

The 3D Indoor Map comprises the buildings' interior structures, including 3D floors, 3D units, and 3D indoor network converted from building plans. It covers the publicly accessible interior of the buildings, including the premises to provide public services such as hospitals, clinics, libraries and performing venues. The 3D Indoor Map facilitates the integration of data from different sources with the floor and unit-based 3D models. The access points, such as unit entrances and exits of each floor created in the indoor map, also support point-to-point routing across multiple locations. The LandsD aims to progressively produce the 3D Indoor Map of 1250 buildings by the end of 2023.



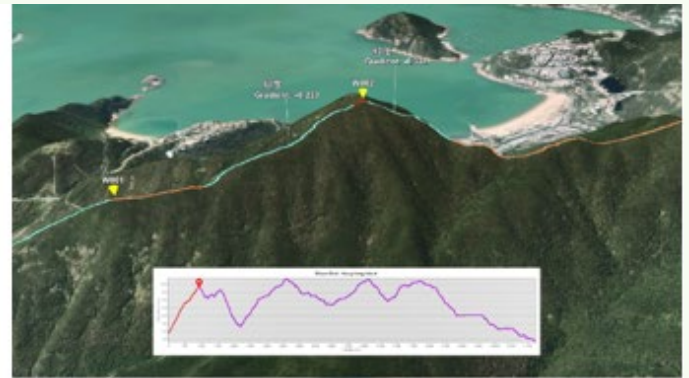
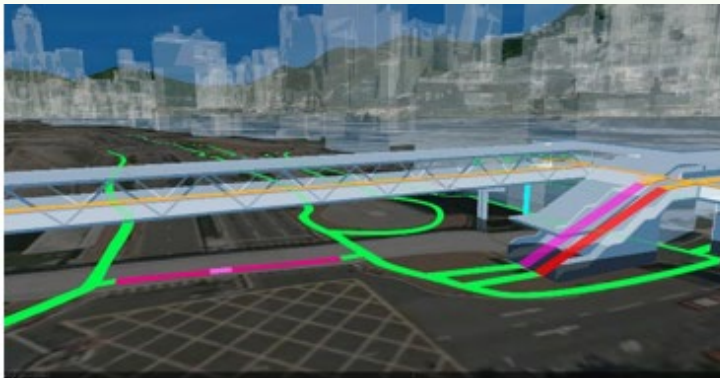
3D Indoor Map

3D Pedestrian Network

The 3D Pedestrian Network, now measuring 9 100 km in length, covers publicly accessible places (including footways, footbridges, subways, unpaid areas of all MTR stations, parks and selected passages of shopping centres connected to publicly accessible places) in urban areas of Hong Kong and on five main outlying islands, including Lantau Island, Lamma Island, Cheung Chau, Peng Chau and Ma Wan. It also covers village roads in rural areas and hiking trails in country parks.



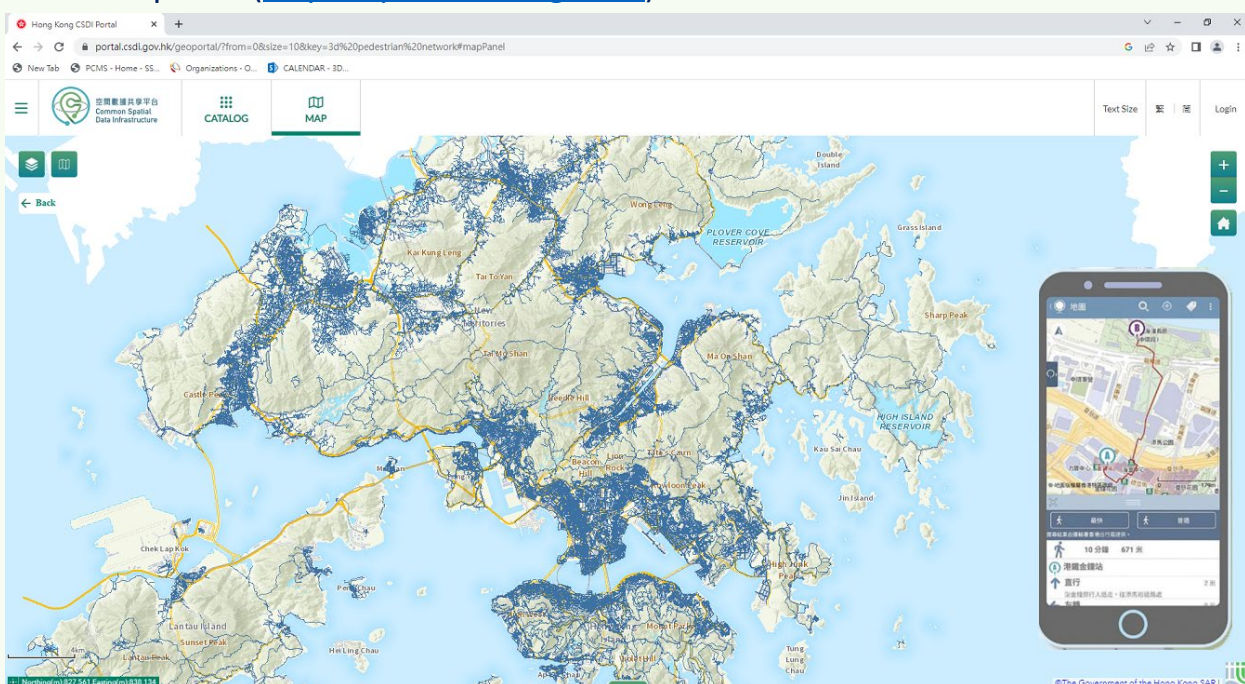
The entire network is a set of the 3D line features with useful information such as the gradient and length of a footpath, barrier-free access location, opening hours of public lifts, etc. It greatly enhances the accuracy of calculating the estimated walking time and distance. It also supports various innovative technologies, such as navigation with Augmented Reality (AR) and voice navigation for visually impaired people.



3D Pedestrian Network

MyMapHK, a mobile map application developed by the LandsD, and the HKeMobility mobile app developed by the Transport Department, use the 3D Pedestrian Network to provide route searching function.

Members of the public and application developers can now download the first 3D Visualisation Map dataset covering the Kowloon East region and the 3D Pedestrian Network free of charge from the CSDI portal (<https://portal.csd.gov.hk>) which was released since 29 December, 2022.





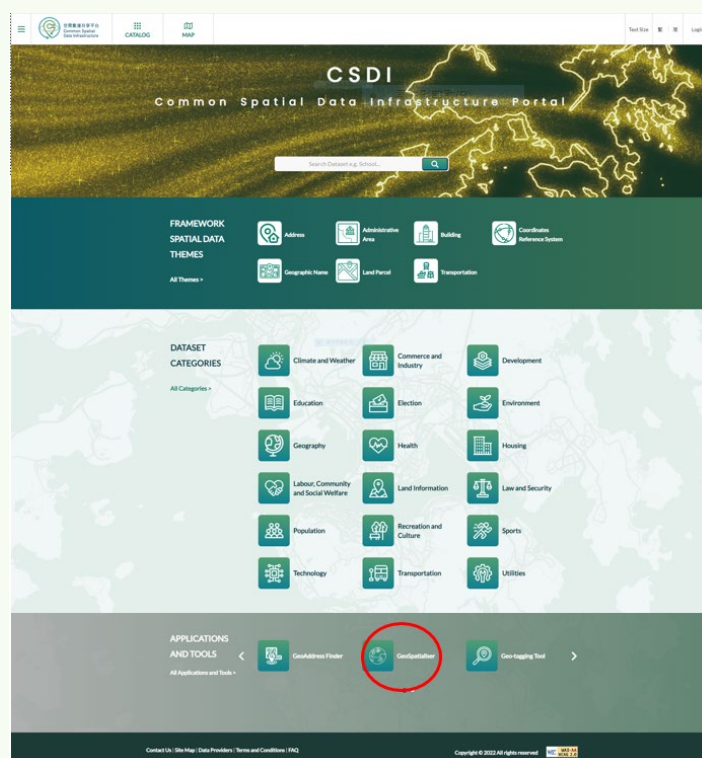
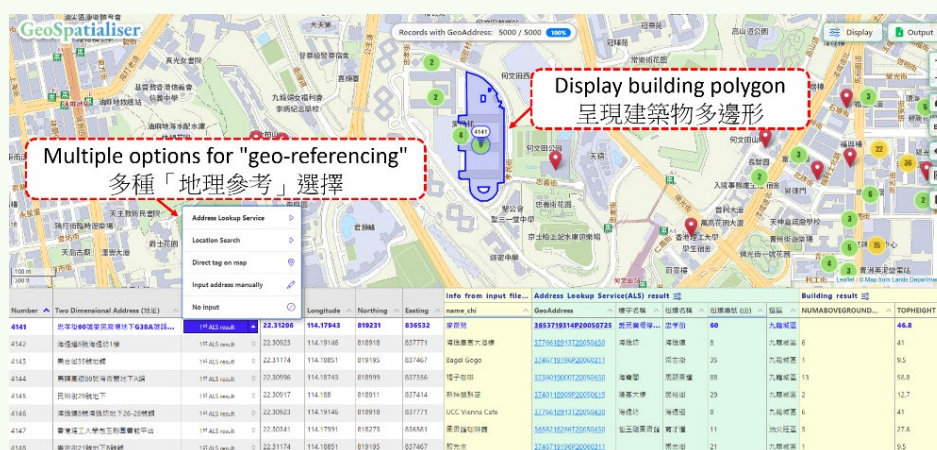
GEOSPATIALISER AVAILABLE FOR USE

As one of the illustration of spatial application using CSDI data and Application Programming Interface (API), Spatial Data Office of the Development Bureau (DEVB) developed a tool named GeoSpatialiser to provide speedy geo-coding services for multiple addresses. The tool applies various matching approaches so as to pin the data (e.g. clinic of different specialists data in an Excel with address) on a map, and allow users to download the results in common formats such as excel and csv, as well as GML and GeoJSON which are open and machine-readable GIS ready format.

DEVB exhibited the GeoSpatialiser at the "Smart Hong Kong Pavilion" of InnoEX 2023 in mid-April 2023, in which visitors could have a clearer picture on how the GeoSpatialiser manipulates the use of spatial data provided in CSDI portal. The feedback received from the event were also positive and encouraging.

The GeoSpatialiser (<https://tools.csd.gov.hk/geospatialiser/>) is now available for public use since 25 April 2023. Please trial use the GeoSpatialiser at CSDI portal (<https://portal.csd.gov.hk/>).





GeoSpatialiser in CSDI Portal



Latest activities of Geospatial Lab (GeoLab)



Professional Geospatial Workshop

On 18 February 2023 "Exploring Spatial Data for GIS Application" was introduced to GIS beginners. Guest lecturer presented the introduction to GIS and demonstrated hands-on practice for display, edit, query and analysis of spatial data to participants for kicking off their exploration in spatial data and GIS.



Highlights of Past Events

3D Digital Map is one of the major datasets of the Common Spatial Data Infrastructure. Compared with traditional 2D maps, it provides more realistic, accurate and resourceful digital map data, which can be applied to geospatial data analysis and applications. Talk on "Introduction to 3D Digital Map" was conducted on 21 February 2023 to introduce three components: (i) 3D visualisation map showing the topography, appearance of building and infrastructure, (ii) 3D indoor map, and (iii) 3D pedestrian network, as well as the challenges of developing the data in Hong Kong. It also consisted of a hands-on practice, demonstrating how to import 3D Digital Map dataset into GIS software.



“Sharing on Common Spatial Data Infrastructure (CSDI) Portal and Framework Spatial Data Theme (FSDT)” was held on 27 February 2023. Guest speakers from the government bureaux / departments were invited to share the latest development on CSDI, CSDI Portal and FSDT; representatives from the industries share how CSDI can meet the operational needs.



Theme Talks x Workshops

The theme in March and April 2023 focused on “tourism and hospitality”. Talk on “Ecotourism: A Resource Planning Perspective” and workshop on “The Application of GIS in Sustainable Tourism Planning” were scheduled on 25 March and 15 April respectively for the general public. The talk demonstrated how geospatial techniques could be utilized for more



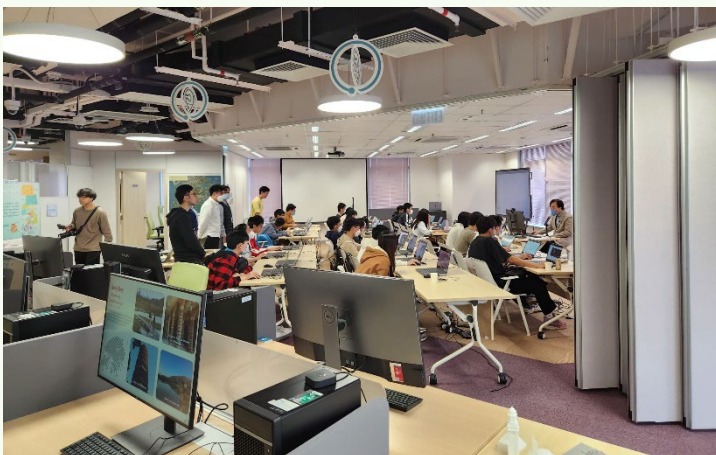
sustainable ecotourism planning. Meanwhile, the workshop provided participants with direct hands-on experience to industry-leading web-based mapping applications while learning the geospatial techniques. Click the [link](#) for more details.

For more information related to the activities, please visit <https://csdigeolab.gov.hk/en/> to have a look or to sign in GeoLab's activities.



CSDI Awards 2023

Spatial data are part of everyday life. Easily accessible, high quality and up-to-date spatial data and services are essential to a smart city. To propel Hong Kong's development into a liveable, smart and innovative city, Common Spatial Data Infrastructure ("CSDI") was launched in December 2022 to facilitate searching, viewing and downloading of various kinds of spatial data for free by the general public. To promote CSDI and to raise the public's interest in spatial data, Geospatial Lab, established by the Development Bureau, is organizing the CSDI Awards 2023 – "Propel Our City with Spatial Data" (the "Awards"). The goal of these Awards is to encourage students and individuals from the public to make creative use of spatial data to address challenges faced by the city. This year's theme for the Awards is "Environmental, Social and Governance" ("ESG"). As a "hot topic", ESG encompasses a variety of key issues and challenges that our city needs to address in order to secure a more sustainable future. To provide a better understanding about the CSDI to the contestants, we have organized a series of briefing and workshop from February to April and the responses are overwhelming. About 100 submissions were received for the Awards and we are now process of shortlisting, the shortlisted submission will be presented to judges from different sectors in the Presentation Day and Awards Ceremony on 29 and 30 July. For more details, please visit <https://csdigeolab.gov.hk/en/upcoming-events/csd-awards-2023>.





Roving Exhibition of Common Spatial Data Infrastructure

In February, April and May 2023, we have organized CSDI roving exhibition in Festival Walk, City Gallery and Olympic City II to display a variety of showcases and interactive games for the public to know more about spatial data, CSDI portal, 3D Visualisation Map and its application in real life. Visitors enjoyed it a lot!





空間數據共享平台
Common Spatial
Data Infrastructure

NEWSLETTER

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