



空間數據共享平台  
Common Spatial  
Data Infrastructure

# Bring Spatial Data and Geo-AI Analysis for Tree Management in Hong Kong

## “Tree Wise”

Team C4-10 Spatial Innovators:  
Serena Poon | Joe Pang | Basic Law



## Governance

- Heavy resource
- Lack of the automatic updated spatial components



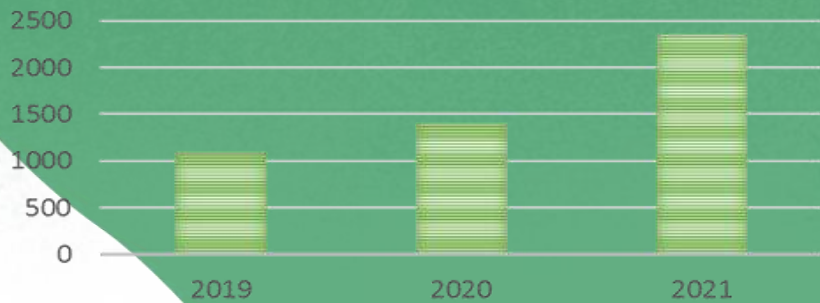
## Society

- Public Safety



## Economy

- Disruption of Infrastructure
- Disruption of transport operation



Number of trees collapse by year

(Ref: Statistics highlight of tree management by government departments in Hong Kong, Research Office Legislative Council (2022))

# Key Challenges of Tree Management in Hong Kong

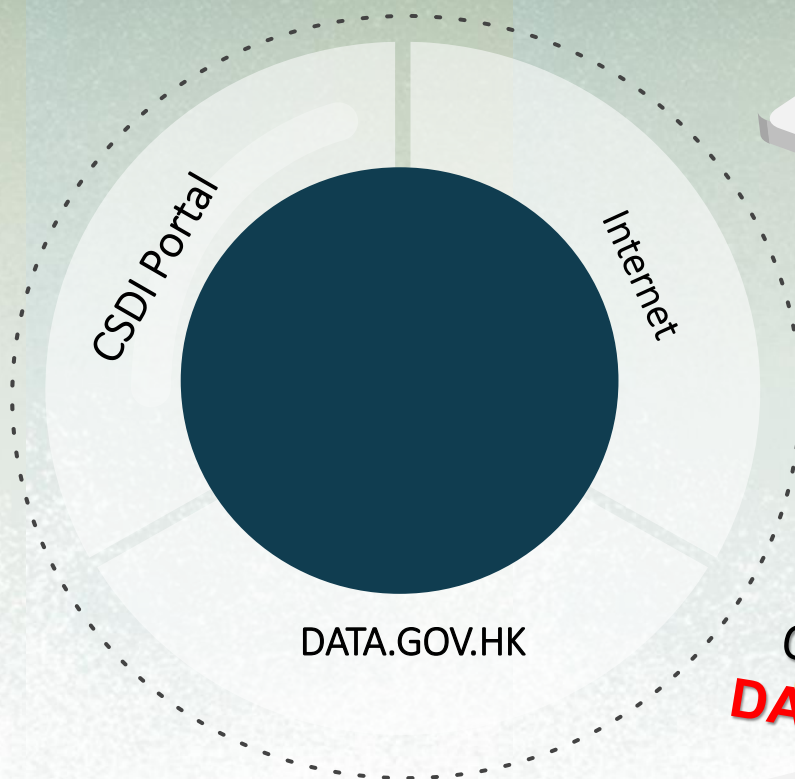


# Key Spatial Data

## CSDI Open Spatial Data

## Internet Data

## Open Data at DATA.GOV.HK




**Aerial Imagery**

  **Lands Department**


True Digital Orthophoto – TDOP Series  
Digital Aerial Photo - RGBI




**Structures / Roads / Private Lots Records**

  Lot, Building,  
Digital Land Boundary Map iC1000  
3D Pedestrian Network  
Road Network

**Population**

 2021 Population  
Census Statistics  
(By Small Tertiary  
Planning Unit  
Group)

**3D Data**


 3D Spatial Data (3D-  
BIT00),  
3D Visualisation Map


...etc

 **CEDD 2020 LiDAR Dataset**

 **Legislative Council**

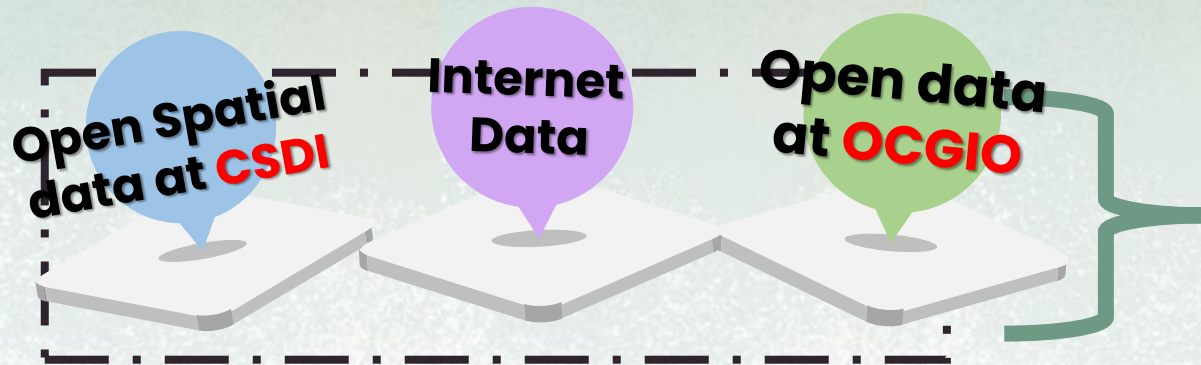
...etc

 **Transportation Information**

 **Tree Information**

...etc

# Intelligent Geo-AI and GIS Analysis Workflow



## Geo-AI Modelling and Processing

Feature Differencing

Segmentation



Machine Learning

NVDI tree health analysis

## GIS Analysis & Applications

Spatial Analysis

GIS Spatial Story Map



GIS Spatial Dashboard



# Project Objectives

## TARGET USERS

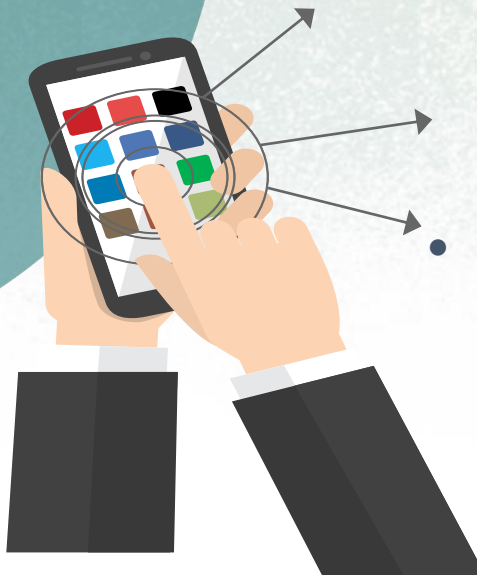
Tree Management Department



Tree specialist



Private Property Management



- To leverage **CSDI open spatial data** and utilize spatial analysis techniques to streamline the tree management in Hong Kong
- Develop an Automated and Innovative **GIS/AI Approach** for **tree detection** and **tree health index analysis**
- Establish a **centralized spatial Dashboard** platform with the use of intuitive and interactive spatial data to present the district-based tree-related analytics results

# Snapshots of the Prototype

