HKT Enterprise Solutions

Intelligent Operation Center (IOC) with Computer Vision and AI Prediction

for Energy Saving

May 2025

HKT IOC Product Overview

What is IOC?

HKT IOC (Intelligent Operation Centre)

- Map-based centralized platform for monitoring, operation, and management of **city & campus properties and infrastructure.**
- Access and display **2D/2.5D/3D model/Live View/3D GIS map**, **CCTV (with VA functions)**, **IoT data** and **Smart Energy system** in **one system.**
- **Open to integrate with Computer Vision and AI prediction module** to enhance **decision-making** accuracy and efficiency. E.g., Security alarm, energy consumption and forecasts, etc.

From macro city to building interior

HKT IOC Product Overview

Pain Points & HKT Solution

Traditional Control Centre

- **High manpower cost**: Staff on duty 7x24 to monitor several screens
- **Low efficiency:** Heavily rely on operator's intuition, observation and experience to analyze events
- **Decentralized management:** Different operation platforms without overall perspective
- **Unguaranteed technology & data:** Key technologies and software are heavily dependent on overseas countries, which may pose future security and operational risks.

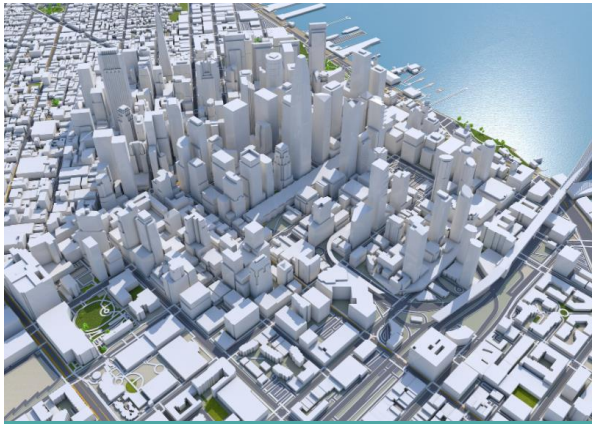
HKT IOC

- **Manpower saving:** Collect data from multiple systems to automatically and immediately alert when events occur. No need for long-term manual monitoring
- **High efficiency:** Integrate cutting-edge technology. AIGC combined with Digital Twin empowers management
- **Overall view:** All-In-One 3D centralized platform with diverse information for quick and precise response
- **Reliable system:** The fully self-developed system supports localized deployment and ensures system and data security.

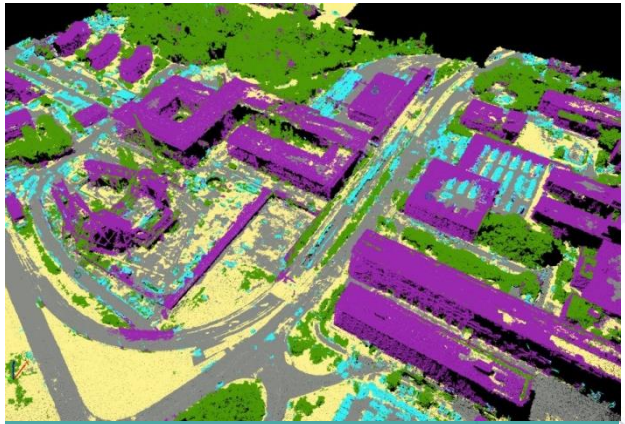
Centralized 3D & GIS Platform

- Compatible with most of the data sources
- Open SDK for further 3rd party development
- Real-time data

GIS map



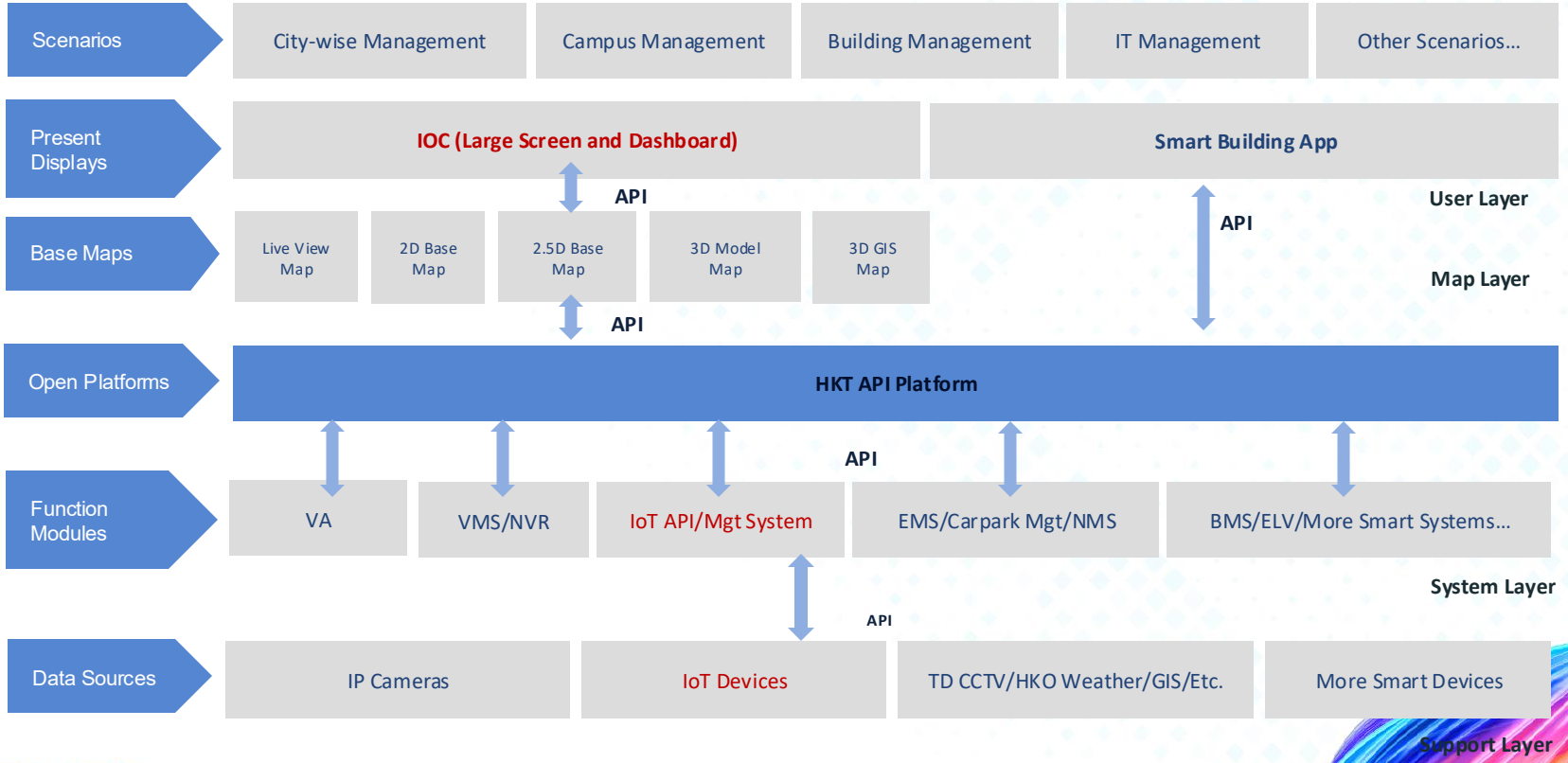
人工建模三維數據 BIM



激光點雲三維數據 Point cloud data

傾斜攝影三維數據 Oblique photography data

IoT & API Platform



CCTV Surveillance & Computer Vision

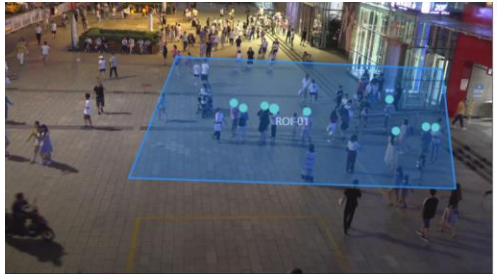
Abnormal Behavior Detection

Falling Detection

Face Recognition & Body Attributes

Smoke & Fire Detection

Crowd Analysis

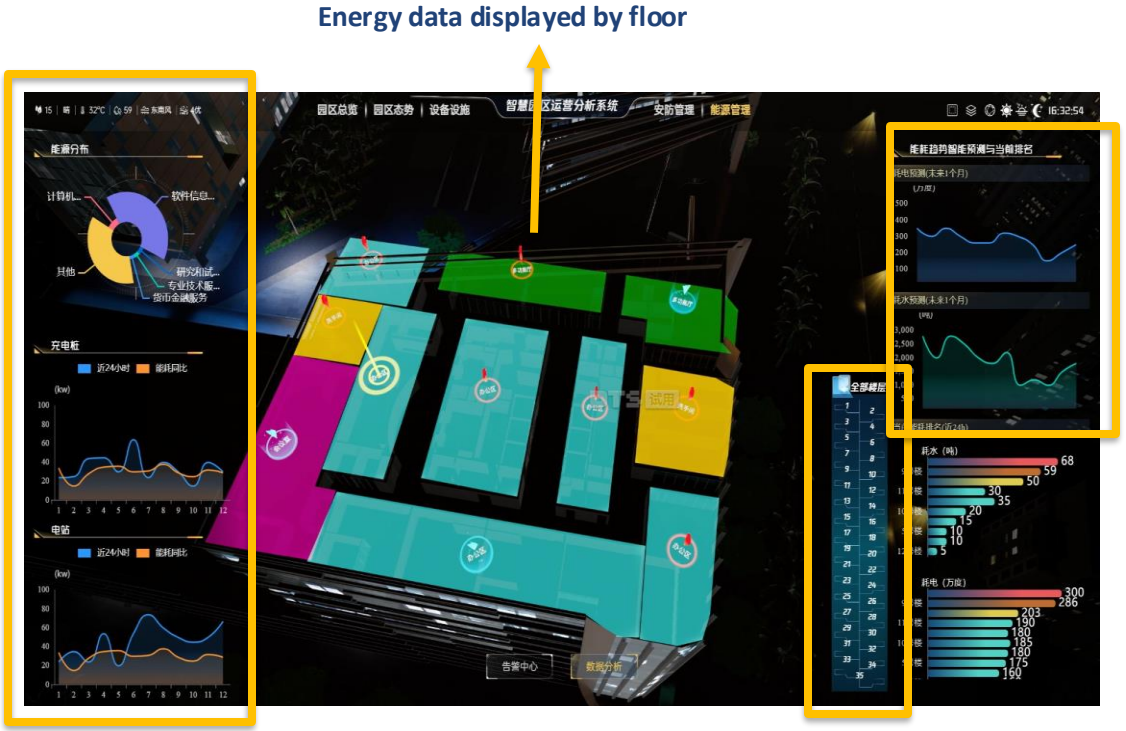


Object Tracking

More AI algorithms ...

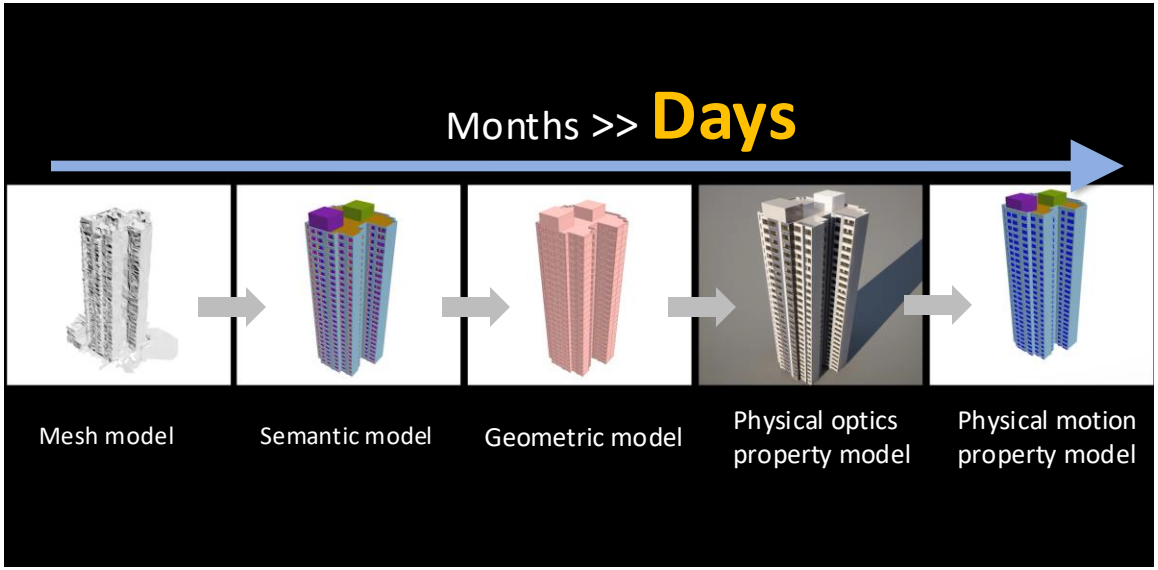
AI Prediction for Energy Saving

IOC enables **forecasting** of energy demand, provides **recommendations** for adjusting building operations based on occupancy patterns and weather conditions, and generates comprehensive **energy usage reports** to support sustainability initiatives and budget planning.



(Sample picture of energy management)

AI-Powered 3D Modeling
– Sematic, Structured, and Lightweight



（Sample picture of **HKT office**）

（Sample picture of 3D modeling）

Hong Kong Real Scene 3D Model

Appendix - IOC System Functions

IOC System Functions
City-wise Management and Monitoring

Overall design

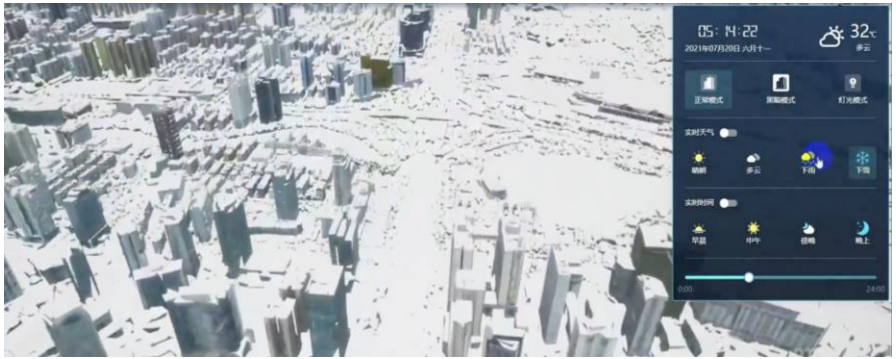
- City Overview
- Alerts pop up in 3D scene with accurate location information

(Sample picture)

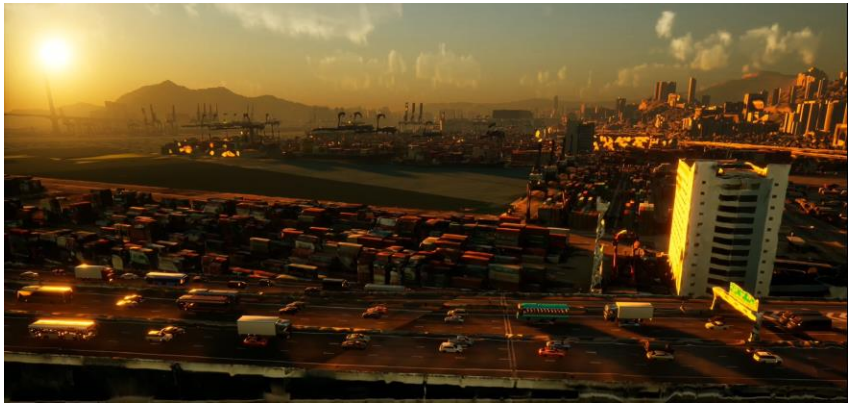
IOC System Functions
City-wise Management and Monitoring

AI simulation

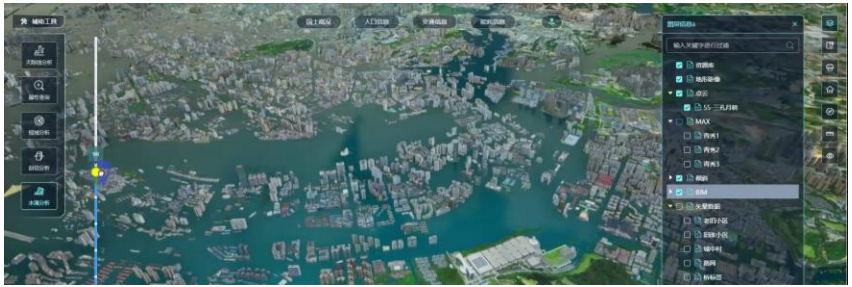
- Sunlight & weather simulation
- Flood simulation



(Sample picture of snow simulation)



(Sample picture of sunlight simulation)



(Sample picture of flood simulation)

IOC System Functions
City-wise Management and Monitoring

IOT and real-time APIs

- HK weather notification(HKO);
- HK news(RTHK);
- CSDI APIs(TD CCTV);
- Smart Lamppost;
- and etc.

(Sample picture of CSDI TD traffic data)

Smart lamppost information

(Sample picture of IOT & real-time information)

IOC System Functions
Campus/Building Management

Device management

- Ventilation, Fire, Plumbing & Drainage, Electricity
- ACS

(Sample picture of device management)

(Sample picture of ACS management & face recognition)

IOC System Functions
Campus/Building Management

Vehicle/Carpark management

(Sample picture of vehicle/carpark management)

IOC System Functions
Campus/Building Management

AI alert event management – Fire alert

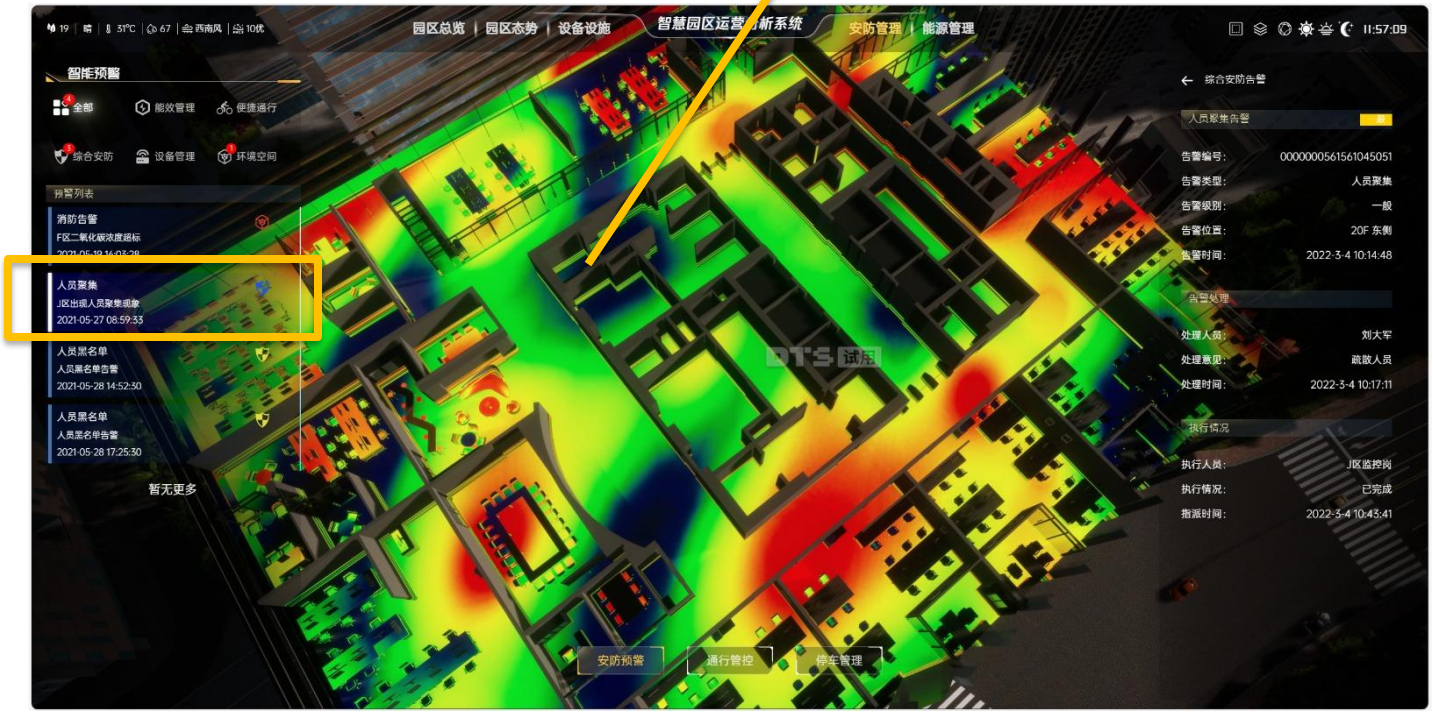
(Sample picture of fire alert event management)

IOC System Functions
Campus/Building Management

AI alert event management – Crowd detection

Heatmap in 3D scene

AI alert



(Sample picture of crowd heatmap)

Thanks