



# HKIA Airfield 4.0

for Asia Pacific Region Innovation & Capacity Building Symposium 2023  
Expert Panel 2: Innovation on Ground – Airport Operations

Steven Yiu  
Executive Director, Airport Operation  
Airport Authority HK

# Digital transformation brings about a paradigm shift in airfield operation



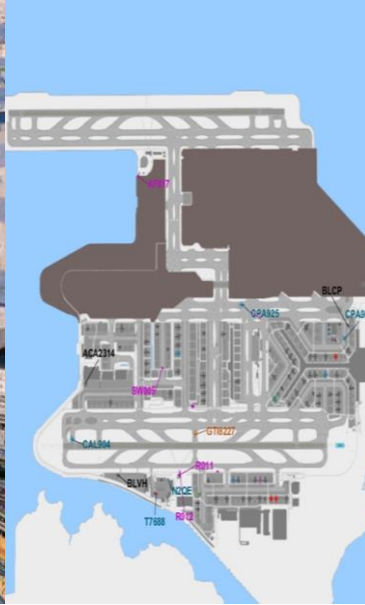
1.0

Kai Tak Airport



2.0

HKIA



3.0

HKIA with A-CDM



4.0

Powered by digital technologies and processes to deliver a smart, autonomous, collaborative, green operation model

# Leveraging the digital technology, HKIA is hammering out a new paradigm in Airfield Management



**Proactive**

**Collaborative**

**Automated**



# HKIA Airfield 4.0 is built on four pillars



Smart Operation



Autonomous Operation



Collaborative Operation



Sustainable Operation

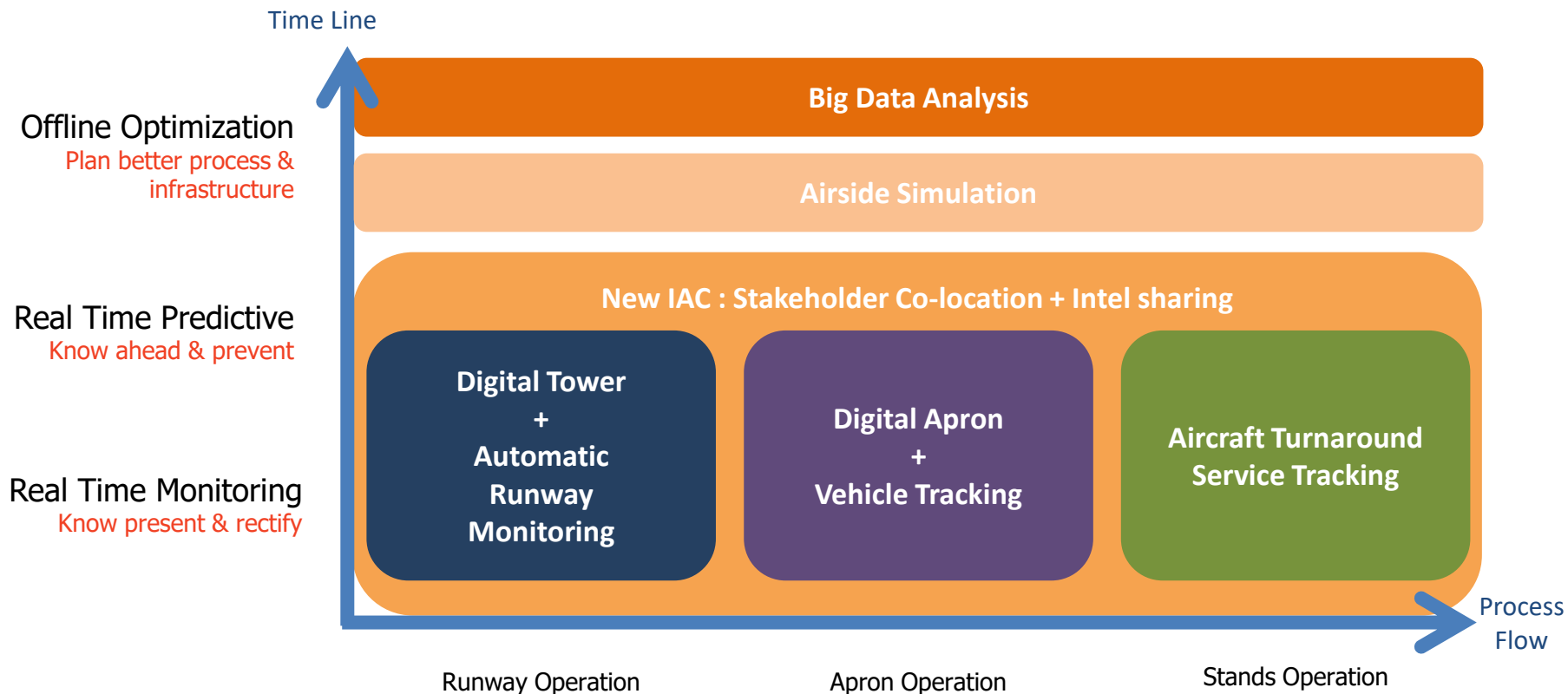


01

# Smart Operation

surveillance & decision well aided by technology

# Overview of system deployment for Smart Operation

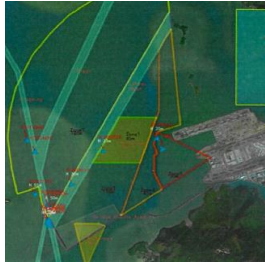


# Smart Runway Operation

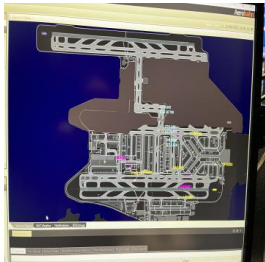
## full surveillance, risk detection and condition reporting



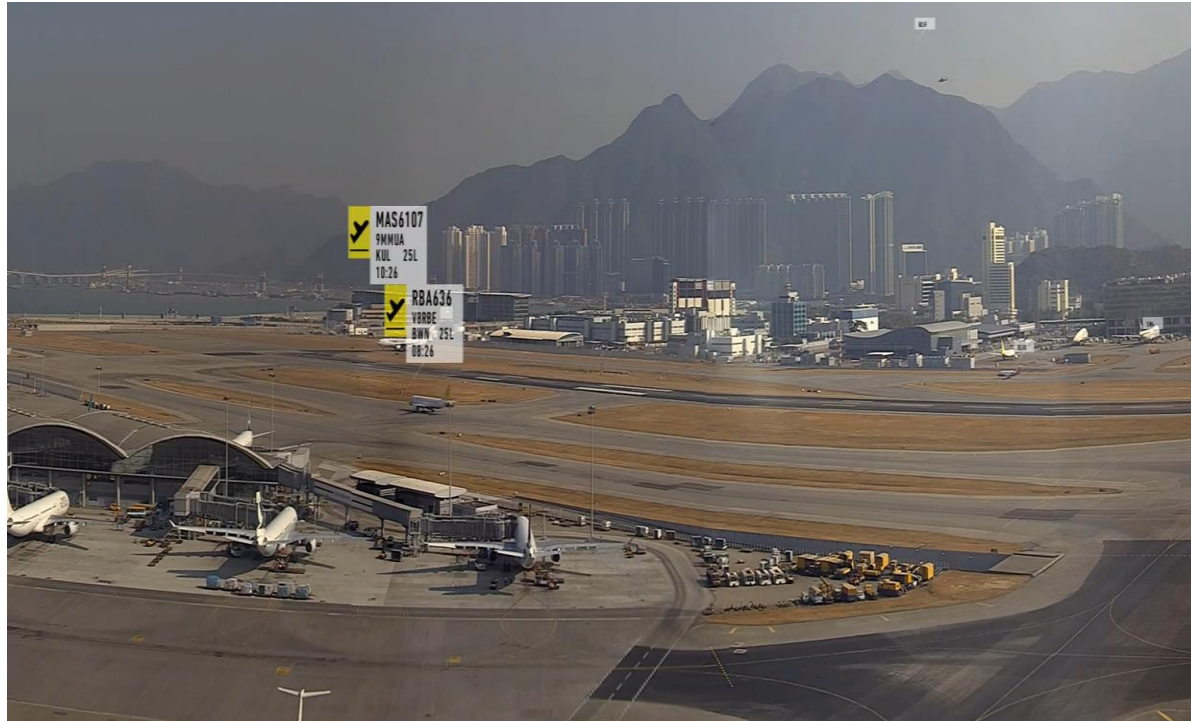
Drone Detection



Tall Vessel Movement Detection



Precision Tracking



Digital Tower



ICAO GRF Reporting



FOD Detection



Runway Intrusion



# Smart Apron Operation - full digital visibility & comprehensive alert



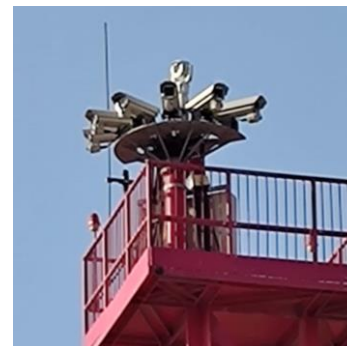
Digital Apron



Full Airside Vehicle Tracking



Real Time Stand Status Tracking



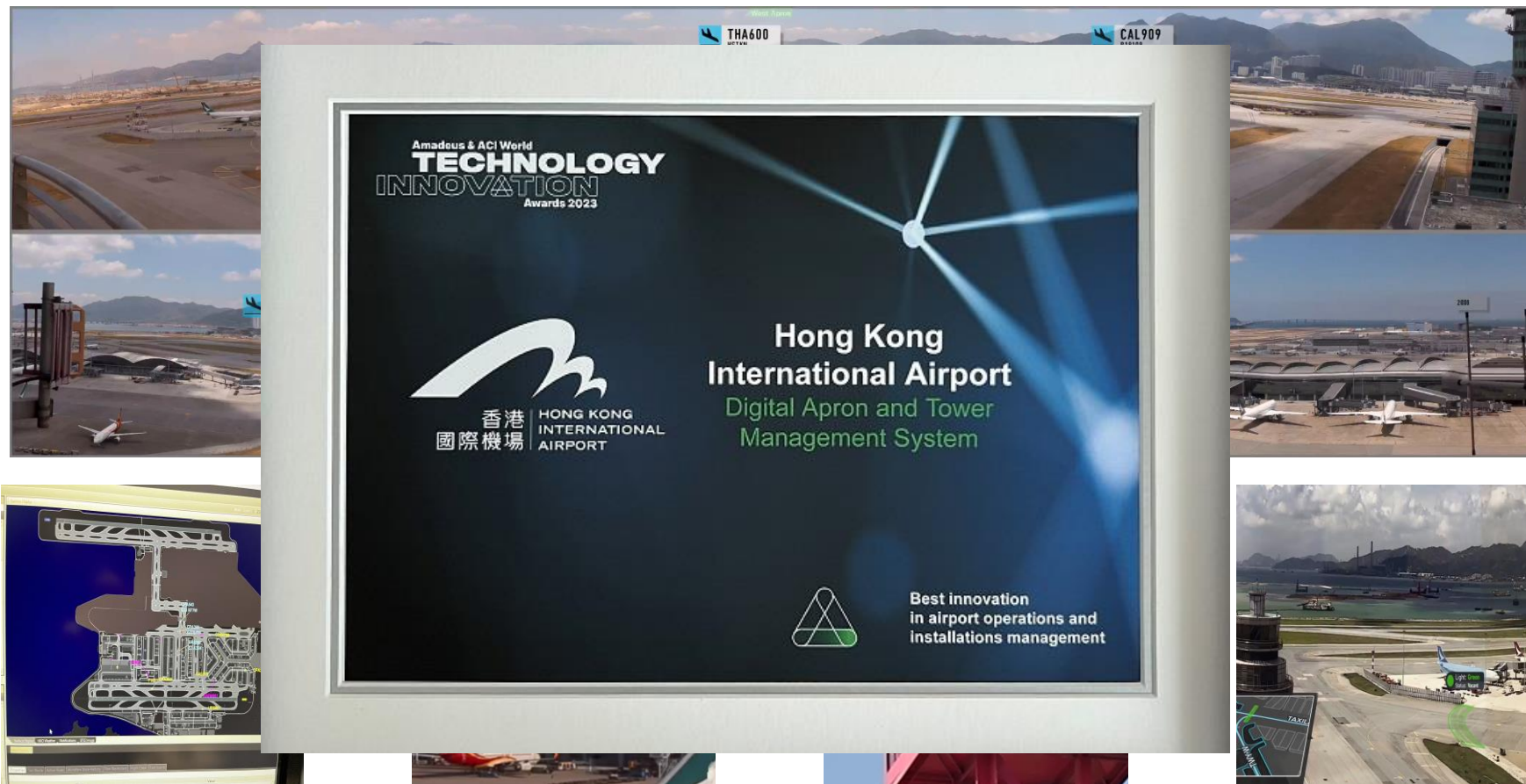
Full 4K Camera Coverage



Traffic Light Alert System



# Smart Apron Operation - full digital visibility & comprehensive alert



Full Airside Vehicle Tracking

Real Time Stand Status Tracking

Full 4K Camera Coverage

Traffic Light Alert System

## Smart Stand Operation - Real-time tracking of aircraft turnaround





# HKIA New Integrated Airport Control Centre

provides full visual & digital surveillance & response agility



Airfield



Automated People Mover



Terminal



HKIA New IAC



Baggage



Landside



Security



Hong Kong Observatory



Ramp Handling



Line Maintenance



Airlines





02

## Autonomous Operation

Reducing labour dependence

# Full Range of Autonomous Vehicles Deployment at HKIA



Patrol Car



Baggage Tractor



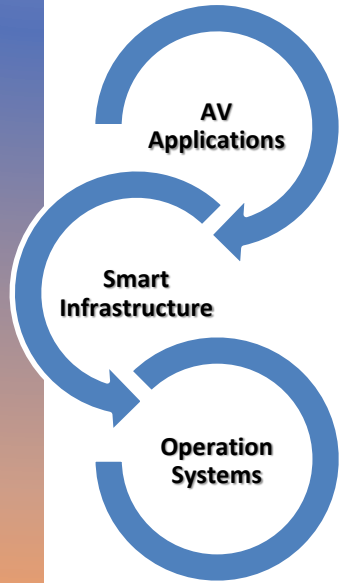
Cargo Tractor



Staff Bus



# Roadmap of Autonomous Vehicles Application & Enabling Systems at HKIA



Patrol Car



Baggage Tractor



Cargo Tractor



Staff Bus



5G Network



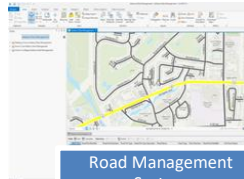
Roadside Units



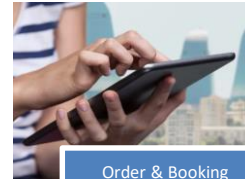
Tracking Systems



Fleet Management System



Road Management System



Order & Booking



Charging System

Roadmap for full-fledge fleet deployment with hundred of AVs ultimately



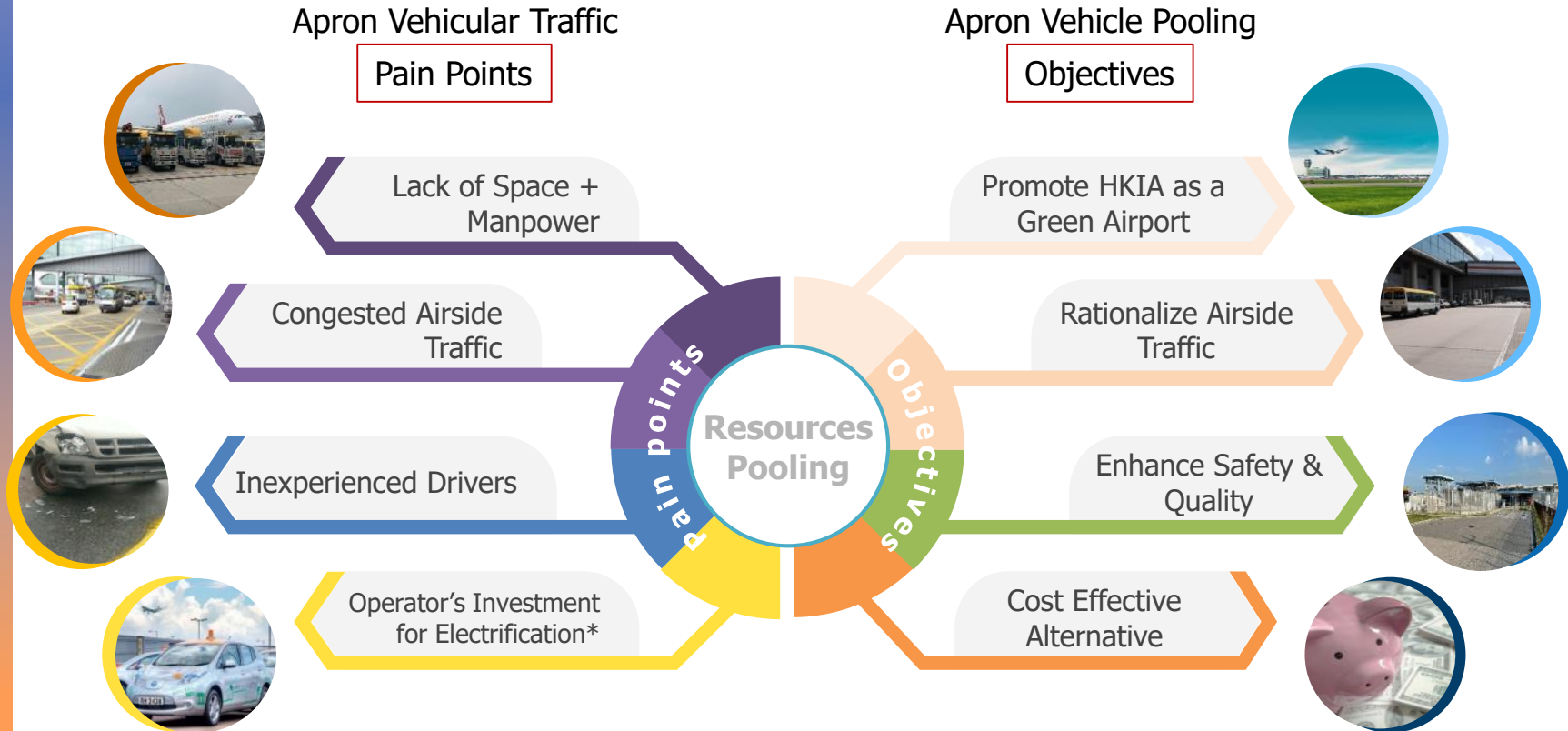


03

# Collaborative Operation

Share and win together

# HKIA World-First Apron Resources Pooling Concept



\* All Class 1 vehicles must be electrified by Dec 2022

# Pooling Schemes at HKIA

## Equipment Pooling



ULD loader



Dolly



Conveyor



Pushback tractor

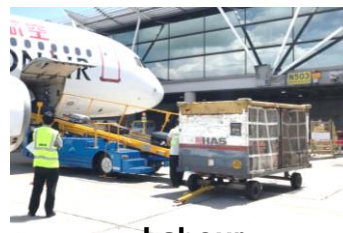
## Service Pooling



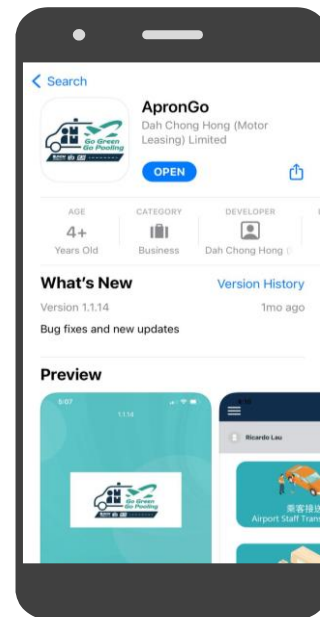
Baggage towing



Staff transportation



Labour







**THANK YOU**

---