



# IOT DATA HACKATHON 2026



A Casebook of  
Winning Solutions



# Content

## 1 About

About IOT Data Hackathon 3

## 2 Winning Solutions - Professional Stream

**Champion, Best Low-Altitude Economy Innovation Award, Innovator of Secure by Design** 4-7  
Keep Data Moving - MTR Corporation  
*UAV Guard: Empowering Low-Altitude Economic Growth*

**1st Runner Up** 8-9  
DefinePro  
*Digital Product Passport Control Tower*

**2nd Runner Up** 10-11  
MingQ Tech  
*MingQ IntelliSort System – B2B2C-Ready Pick-to-Light Sorting Solution for Intelligent Warehouse Operation & Management*

## 3 Winning Solutions - Student Stream

**Champion, Best ESG Achievement Award, Best Use of AI Award, Innovator of Secure by Design** 12-15  
De-Buggers  
*Supply Chain System: From predicting risks to automated responses*

**1st Runner Up & Best Low-Altitude Economy Innovation Award** 16-18  
Elevanators  
*ORBITRON*

**2nd Runner Up** 19-20  
Jockey Team  
*AI+IOT-Driven precision reach and intelligent hub solution*

## 4 Behind the Scenes

21

## 5 Organising Committee

22

## 6 Acknowledgements

23

# About

## IOT Data Hackathon

Organised by GS1 Hong Kong and co-organised by Hong Kong Cyberport Management Company Limited and the Hong Kong Science and Technology Parks Corporation, with full support from the Digital Policy Office, the IOT Data Hackathon brings together the brightest minds — tertiary students, data enthusiasts, seasoned professionals, and entrepreneurs — to transform real-world challenges into actionable solutions.

Divided into Professional and Student streams, the hackathon is centred on **Technology & Business Innovation** and **Social Impact & Sustainability**. It is powered by a robust ecosystem, featuring five challenge providers — A.S. Watson Industries, Cobalt Fashion (Hong Kong), DFI Retail Group – Mannings, HKT, and The Hong Kong Council of Social Service & the Jockey Club “age at home” Gerontech Education and Rental Service — alongside tech partners AWS and Esri China (Hong Kong), expert consultation from Check Point Software Technologies, and a network of over 40 partners & supporting organisations, creating the conditions for bold ideas to become winning solutions.

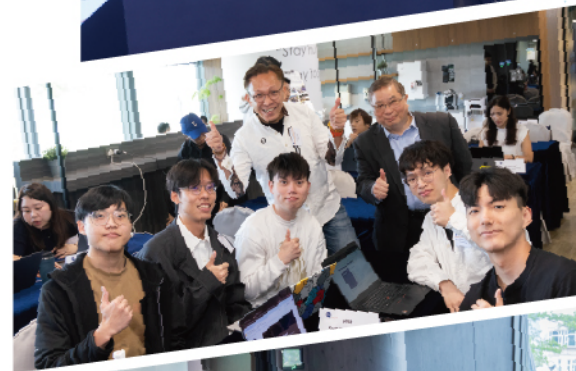
Across an intensive programme of workshops, mentoring, and pitching, participants take their ideas from initial proposal to final pitch—sharpening concepts through pre-hackathon training, hands-on access to business data for testing, and guidance from mentors. The winning solutions featured in this casebook are the outcome of that journey: practical, data-driven innovations shaped by collaboration, expert insight, and a shared ambition to create measurable value for business and society.

**163** Teams **12** Awards

**13** Judges **26** Mentors

**50+** Sponsors, Partners & Supporting Organisations

**7** Pre-Hackathon Workshops



Champion

Best Low-Altitude Economy Innovation Award

Innovator of Secure by Design

## Keep Data Moving-MTR Corporation

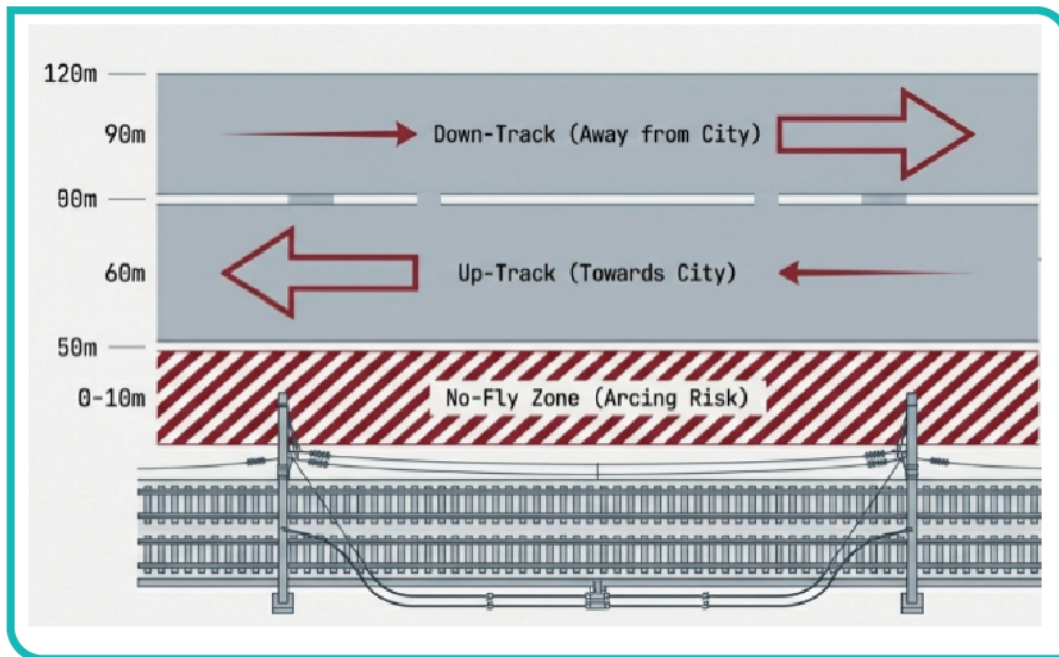
UAV Guard: Empowering  
Low-Altitude Economic Growth



### THE CHALLENGE

- 1. Absence of Centralised Infrastructure** : The development of a robust low-altitude economy in Hong Kong is hindered by the lack of a centralised Unmanned Aircraft System Traffic Management (UTM) platform.
- 2. High Operational Risks** : The absence of a structured ecosystem to monitor cooperative drones and detect uncooperative aircraft creates significant safety and security risks for businesses.
- 3. Lack of Commercial Incentives** : Despite high technical interest in Unmanned Aerial Vehicles (UAVs), the sector lacks sustainable financial frameworks and clear funding models to encourage commercial entry and innovation.





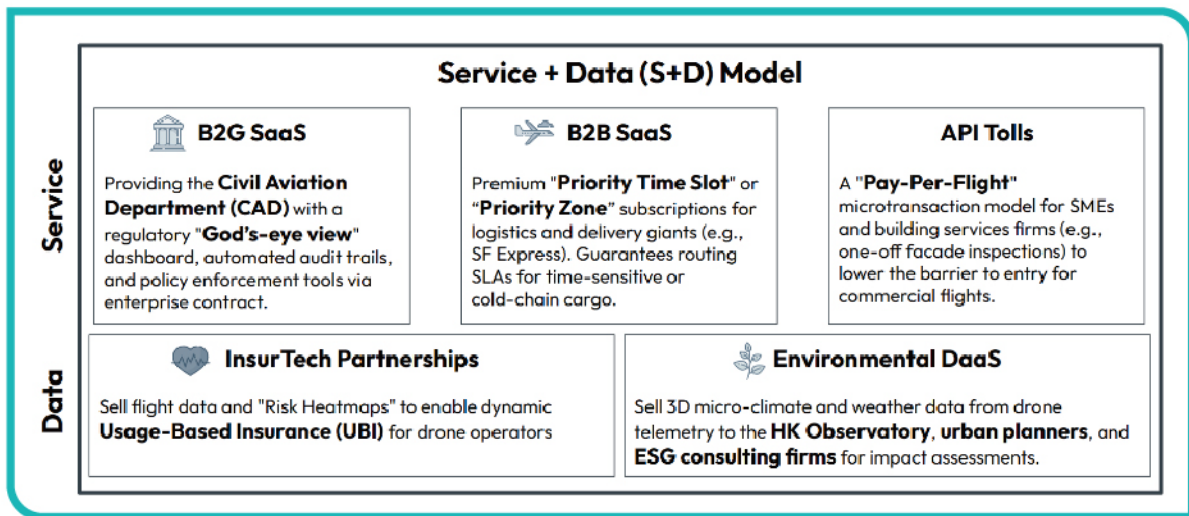
### 1. Centralised Management :

The platform serves as a unified command centre for various stakeholders. It implements dynamic traffic control through “highways in the sky” (Up-Track and Down-Track corridors) and a “Moving Block” concept. This, combined with the drones’ own obstacle detection, achieves triple redundancy for safety. An AI-driven Risk Index provides real-time flight recommendations by analysing population density and environmental variables.

**2.Registration System :** A comprehensive database categorises and registers drone owners and aircraft, including natural persons, government bodies, and manufacturers. This ensures full accountability across the airspace and provides a foundation for “Service + Data” (S+D) monetisation.

**3.UTM Dual Portal :** The system features a bifurcated interface to meet diverse user needs. The **Public Portal** visualises No-Fly Zones and temporary restrictions to enhance safety awareness, while the **Enterprise Portal** facilitates commercial operations by allowing users to manage flight plans, verify insurance, and access real-time telemetry.

## BENEFITS & IMPACT



The proposal establishes a clear pathway for commercial viability and social benefit:

- 1. Business Impact :** The "Service + Data" (S+D) model creates diverse revenue streams, including B2B SaaS for logistics giants (guaranteeing routing SLAs), "Pay-Per-Flight" API tolls for SMEs, and InsurTech partnerships that utilise "Risk Heatmaps" for usage-based insurance.
- 2. Social & Safety Enhancements :** The platform reduces manual labour hazards by enabling drones to perform high-risk tasks, such as external building inspections. It also ensures robust governance through 4D incident replays, which provide objective evidence for liability and insurance claims.
- 3. Environmental Contribution :** The shift from ground-based logistics to electric UAVs, supported by optimised 3D routing, facilitates urban decarbonisation and reduces ground-level traffic congestion.

## THE FUTURE

The future development of the solution focuses on scaling the "Service + Data" (S+D) ecosystem and enhancing the user interface to provide more granular telemetry and real-time environmental analytics. To ensure long-term viability, the platform aims to expand its data aggregation capabilities, transitioning into a high-value data provider for urban planning and insurance sectors. Technical milestones include refining the AI-driven Risk Index. These advancements aim to establish the platform as a foundational infrastructure for a sustaining regional low-altitude economy.

## First Runner-up

# DefinePro

## Digital Product Passport Control Tower



### THE CHALLENGE


Fashion brands often operate across fragmented systems for sourcing, logistics, inventory, and compliance. This fragmentation makes it harder to maintain a trusted, product-level view, especially when exceptions occur. Teams may spend significant effort reconciling records before they can act or communicate clearly with customers. At the same time, Digital Product Passport (DPP) requirements are increasing expectations for verifiable product identity, traceability, and data transparency.

The image displays the DefinePro app interface across four stages:

- Scan | Tap:** A hand uses a smartphone to scan a garment's tag.
- Authenticate:** The app displays a product image and a "Digital Product Passport" description.
- Connect:** The app shows a list of product details including Product Description, Care Label, Raw Materials, Manufacturing, Sustainability, Additional Product Info, Warranty, and Traceability.
- Circularity:** The app displays the DefinePro logo and buttons for Repair Services, Retail Partners, and Recycle Partners.

Each stage is powered by DefinePro. To the right, a "Get In Touch" section provides contact information:

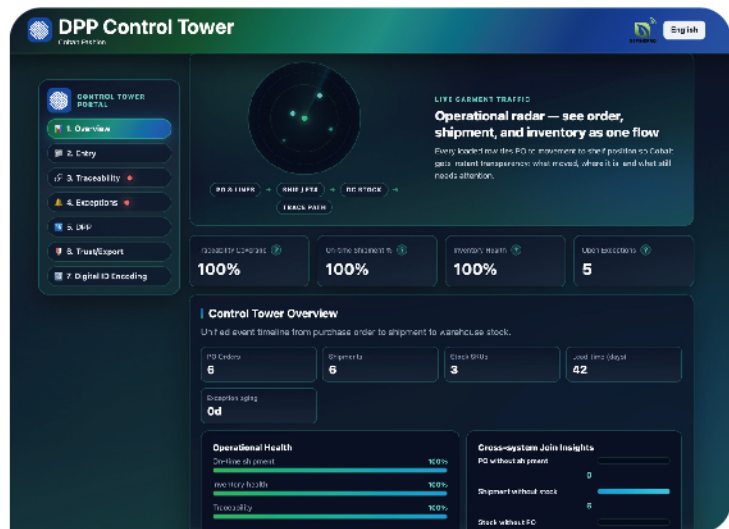
- Email: [derek@define-pro.com](mailto:derek@define-pro.com)
- Website: [www.define-pro.com](http://www.define-pro.com)
- In touch with below Digital Name Card:



## THE PROPOSAL

The award-winning proposal, **DPP Control Tower for Cobalt by DefinePro**, demonstrates how operational data can be transformed into decision-ready workflows for fashion teams. The solution provides seven connected views: Overview, Entry, Traceability, Exceptions, DPP, Trust/Export, and Digital ID Encoding. It reflects DefinePro's service direction:

- **RFID tagging services** : to establish physical-to-digital identity links,
- **SaaS workflows** for daily operational visibility and exception handling, and
- **DPP-as-a-Service** to support readiness, evidence structuring, and external communication.



## BENEFITS & IMPACT

For fashion brands, the solution supports earlier risk visibility, clearer cross-functional ownership, and faster exception response. It helps connect operational execution with compliance narratives in one flow, reducing reliance on manual data stitching. End users benefit from stronger product transparency and more consistent communication during disruptions. The approach can also support more responsible and traceable product storytelling across the lifecycle.

## THE FUTURE

DefinePro plans to extend integrations with ERP, WMS, TMS, EDI, and partner data streams; strengthen event-level provenance and auditability; and expand deployment pathways for fashion brands at different digital maturity levels. The roadmap focuses on practical adoption: from RFID-enabled digital identity to scalable DPP operations delivered through SaaS and managed services.

## Second Runner-up

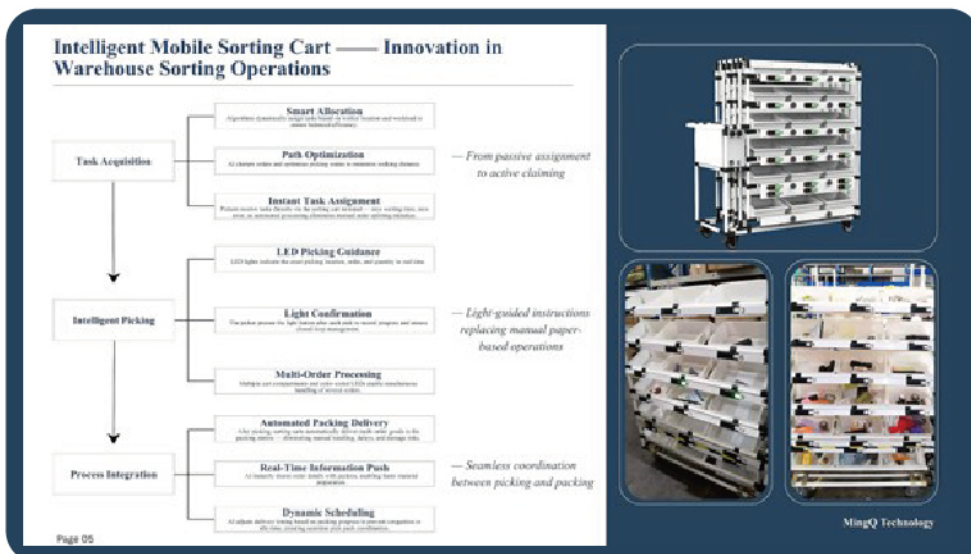
# MingQ Technology Limited

MingQ IntelliSort System —  
B2B2C-Ready Pick-to-Light Sorting Solution  
for Intelligent Warehouse Operation & Management



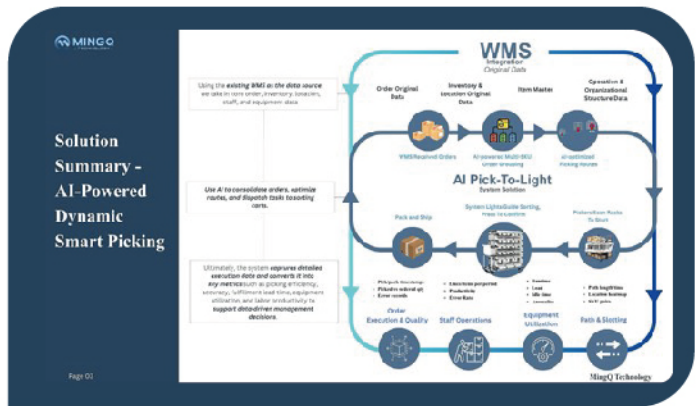
### THE CHALLENGE

AS Watson Industries is transitioning from a traditional B2B distribution model to a B2B2C approach, introducing Click & Collect consumer orders alongside wholesale operations. While shipment volume increases moderately, order lines rise significantly due to fragmented consumer purchasing behaviour. Legacy wave-based warehouse management systems, designed for bulk handling, struggle with this complexity, leading to repeated travel, inefficient picking, limited real-time visibility, and passive inventory management.



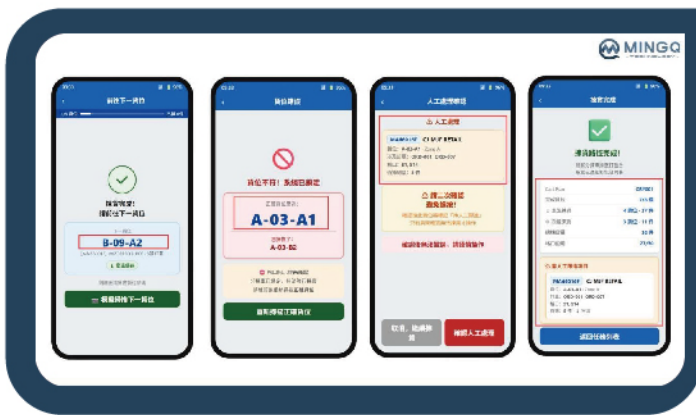
## THE PROPOSAL

The solution introduces an AI-powered Pick-to-Light sorting system that integrates SKU, inventory, shipment, and forecast data. A Wave Consolidation Engine groups orders with overlapping SKUs into optimised multi-order Cart Runs, replacing single-order picking. A 30-slot LED cart guides pickers to deposit items accurately, while FEFO/FIFO logic prioritises near-expiry inventory with active demand. A route optimisation engine reduces walking distance, and dual dashboards provide real-time operational and managerial insights.



## BENEFITS & IMPACT

The solution improves operational efficiency by reducing redundant movement and increasing picking productivity. It enhances inventory visibility, enabling proactive expiry management and more informed replenishment decisions. Clear data insights support better space utilisation and slotting strategies, helping distribution centres accommodate growing demand without significant infrastructure expansion.



## THE FUTURE

Future development includes integrating UHF RFID for automatic bin-level verification and real-time inventory synchronisation. The solution is designed to scale across multiple distribution centres, forming a connected, data-driven fulfilment network that continuously improves through operational learning.

Champion

Innovator of Secure by Design

Best ESG Achievement Award

Best Use of AI Award

## De-Buggers

Supply Chain System:

From predicting risks to automated responses

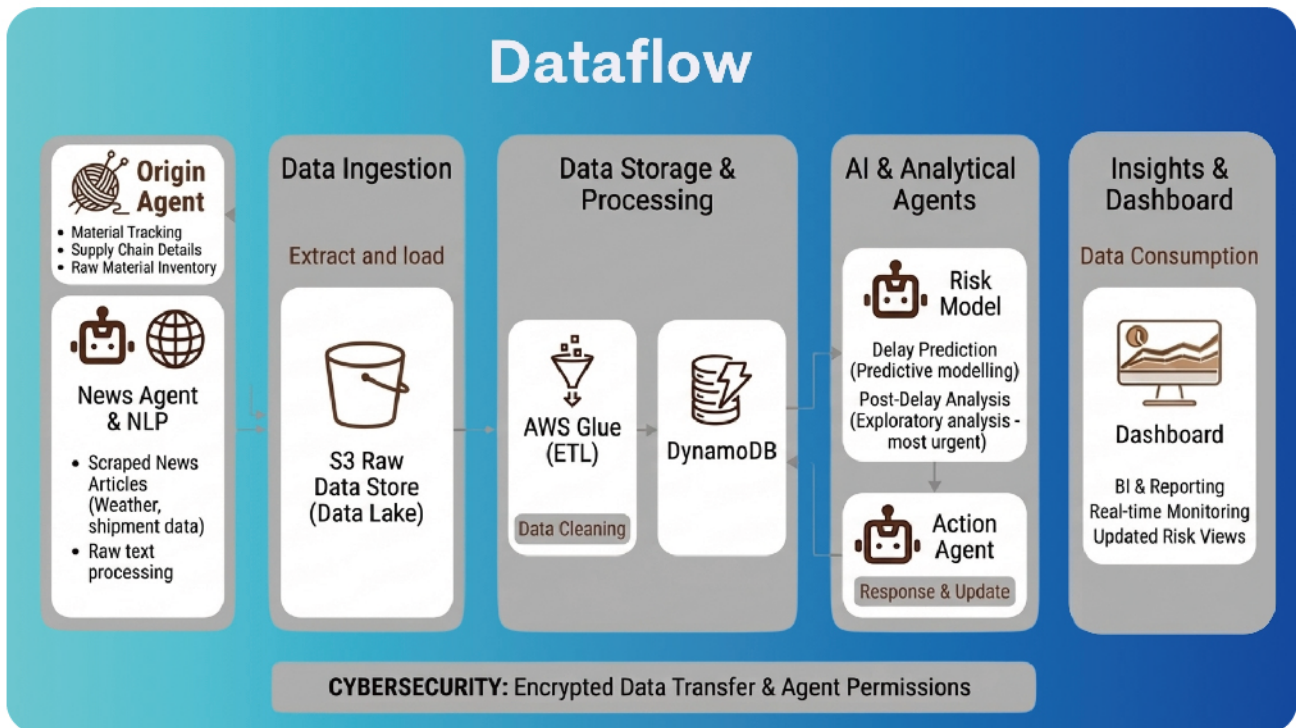


### THE CHALLENGE

- 1. Uncertainty** : Customers cannot track orders end-to-end, creating reactive stress and strained partnerships.
- 2. Unverified Sustainability** : Claims lack proof, limiting customer trust and marketing potential.
- 3. Inefficiency** : Teams are stuck in manual, time-consuming cycles of enquiry and delay diagnosis.
- 4. Brand Trust/Certifications** : 75% of U.S. buyers prefer brands that verify ESG claims via evidence/verification.

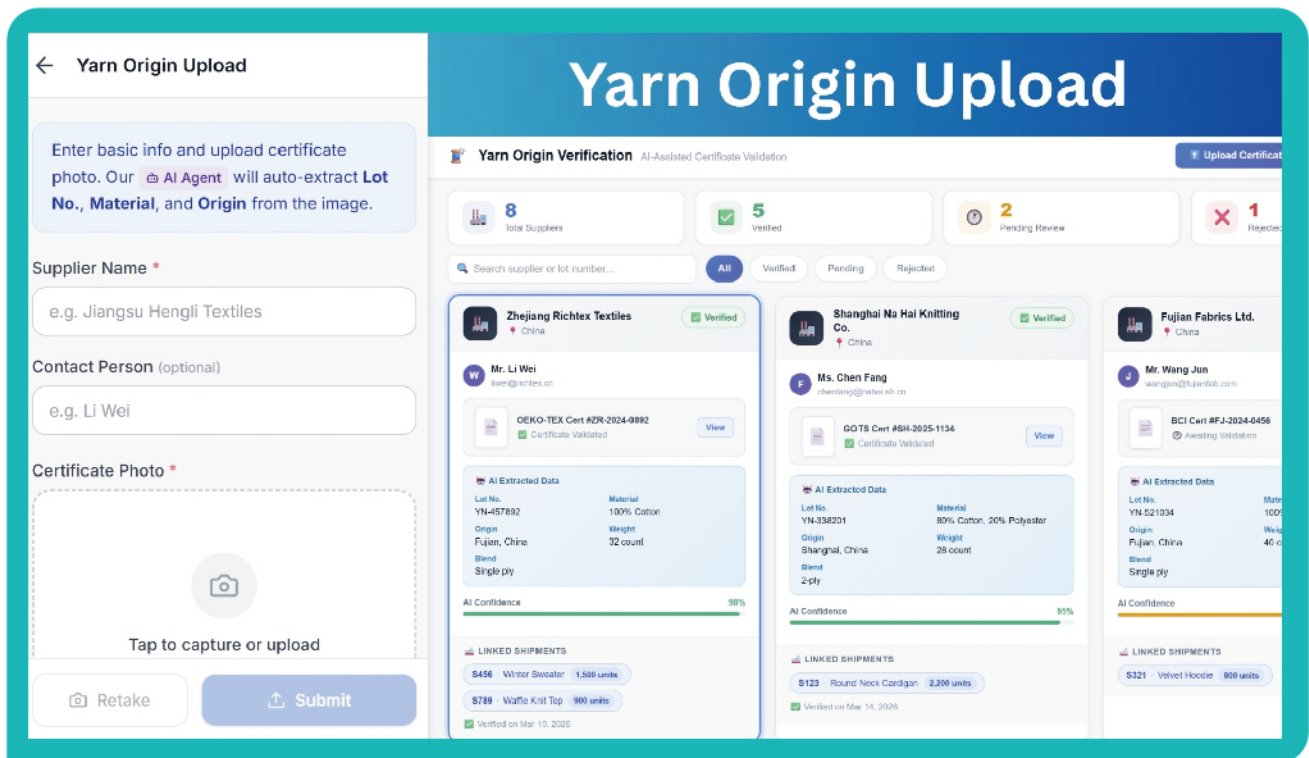
## THE PROPOSAL

- Predictive AI** : Forecasting delays using real-time external data, such as weather and labour market news.
- AI-Powered Traceability** : Validating yarn origins through "Smart Verification" (OCR and NLP) to ensure ESG compliance.
- Automated Action** : Using a "Risk Agent" to instantly detect root causes of delays and trigger responses for an "Action Agent", such as automated emails to customers.



## BENEFITS & IMPACT

- 1. Business Impact :** The system transforms logistics from reactive to proactive, reducing operational costs and risks through predictive AI that forecasts delays up to 72 hours in advance. It replaces manual enquiry cycles with automated root cause analysis, significantly increasing supply chain scalability and speed.
- 2. Social Impact (ESG) :** The platform provides verifiable proof for sustainability claims by using AI to detect document fraud and trace yarn origins, ensuring high governance standards. It also tracks real-time carbon intensity and labour market signals to align global operations with environmental and ethical sourcing goals.
- 3. User Benefit :** Supply chain managers gain a centralised "mission control" that automates status updates and document verification, saving hours of manual work. End-customers enjoy full transparency and peace of mind through a reliable tracking interface that provides evidence-based proof of a product's green credentials.



# Exception Panel & Follow-Up

8 Total Exceptions Today | 3 High Priority Alerts | 2 Delayed Containers | 2 Quantity Mismatches

Exception Log (8 records) | 3 Open | 2 In Progress | 2 Monitoring | 1 Resolved

ID	DATE	CONTAINER	ISSUE	PRIORITY	RESPONSIBLE PARTY	SUGGESTED ACTION	STATUS
EX-001	Mar 26, 2026	C123	Delay >72h	High	Logistics Team	→ Call port agent	Open
EX-002	Mar 26, 2026	C456	Short Shipment	High	Supplier	→ Raise claim	Open
EX-003	Mar 25, 2026	C789	Customs Hold	Medium	Customs Broker	→ Check documents	In Progress
EX-004	Mar 25, 2026	C321	Quantity Mismatch	Medium	Warehouse	→ Recount & verify	In Progress
EX-005	Mar 25, 2026	C654	Weather Delay	Low	Carrier	→ Monitor & update ETA	Monitoring

### C123 — Delay >72h

EX-001 | Mar 26, 2026 | OOCL EUROPE | Port of LA

CONTAINER ID: C123 | LINKED ORDERS: PO567 | ISSUE TYPE: Delay >72h | RESPONSIBLE: Logistics Team | ETA: Mar 24, 2026

DAYS DELAYED: +4 days

**RISK REASON**  
Port congestion at Port of LA causing multi-day berthing delay

**SUGGESTED FOLLOW-UP**  
Contact port agent immediately, request priority berthing slot, notify customer of revised ETA

### Shipping Update: Your Winter Cardigan Shipment

Cobalt Fashion | 2:34 PM

**Shipment Delayed**  
Your estimated delivery date has been updated.

Dear Jason,

We regret to inform you that your shipment has been delayed. We understand how important timely delivery is to you, and we sincerely apologize for this disruption.

**REASON FOR DELAY**  
Port congestion at Los Angeles has caused vessel berthing delays.

**NEW ESTIMATED ARRIVAL**  
March 31, 2026

We apologize for the inconvenience and are working with carriers to expedite delivery. We will keep you informed of any further updates.

If you have any questions, feel free to reply to this email or contact our support team.

## THE FUTURE

The platform's future centres on three phases towards automated "Transparency & Action". It scales from initial risk model training to deploying advanced Intelligent Agents for real-time document validation. Ultimately, it integrates warehouse data to provide proactive ESG tracking, forecasting alerts, and automated system maintenance for optimised logistics.

# First Runner-up

# Best Low-Altitude Economy Innovation Award

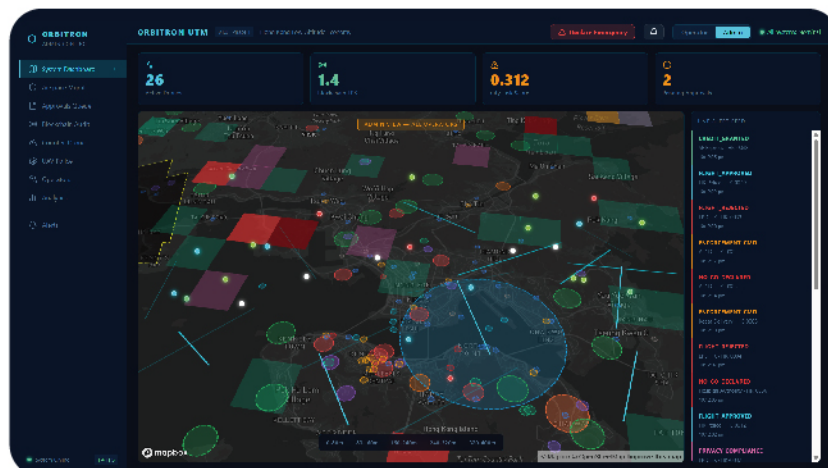
## Elevators

### ORBITRON



### THE CHALLENGE

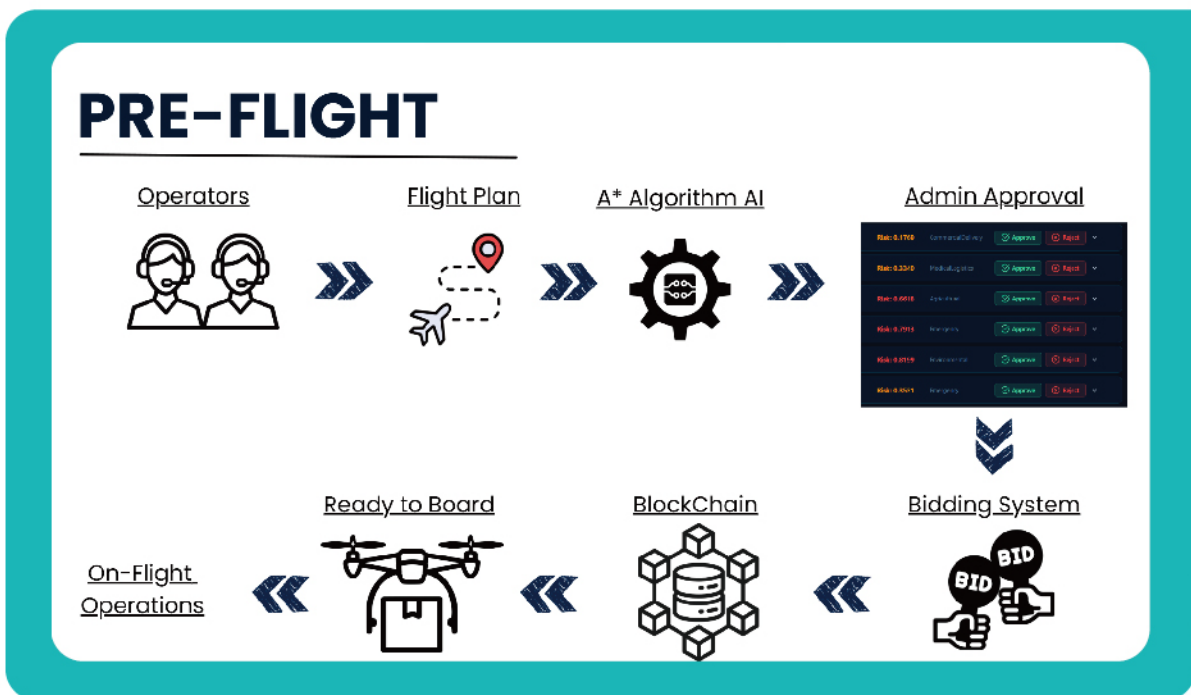
- 1. Unsafe Low-Altitude Airspace** : No robust system exists to ensure flight safety as drones increasingly share urban airspace with each other and other obstacles.
- 2. Poor Traffic Flow & Congestion** : As drone numbers grow, there is no efficient way to manage and optimise the flow of UAV traffic to prevent conflicts and delays.
- 3. Lack of Safety Transparency** : Enterprises operating drones have limited visibility into real-time safety risks, making informed decision-making difficult.
- 4. Multi-Operator Conflicts** : Multiple businesses flying drones simultaneously in the same airspace creates coordination challenges with no clear management framework.
- 5. Complex Urban Integration** : Seamlessly fitting drones into dense, busy urban environments like Hong Kong remains unsolved, especially as low-altitude economic activity accelerates.

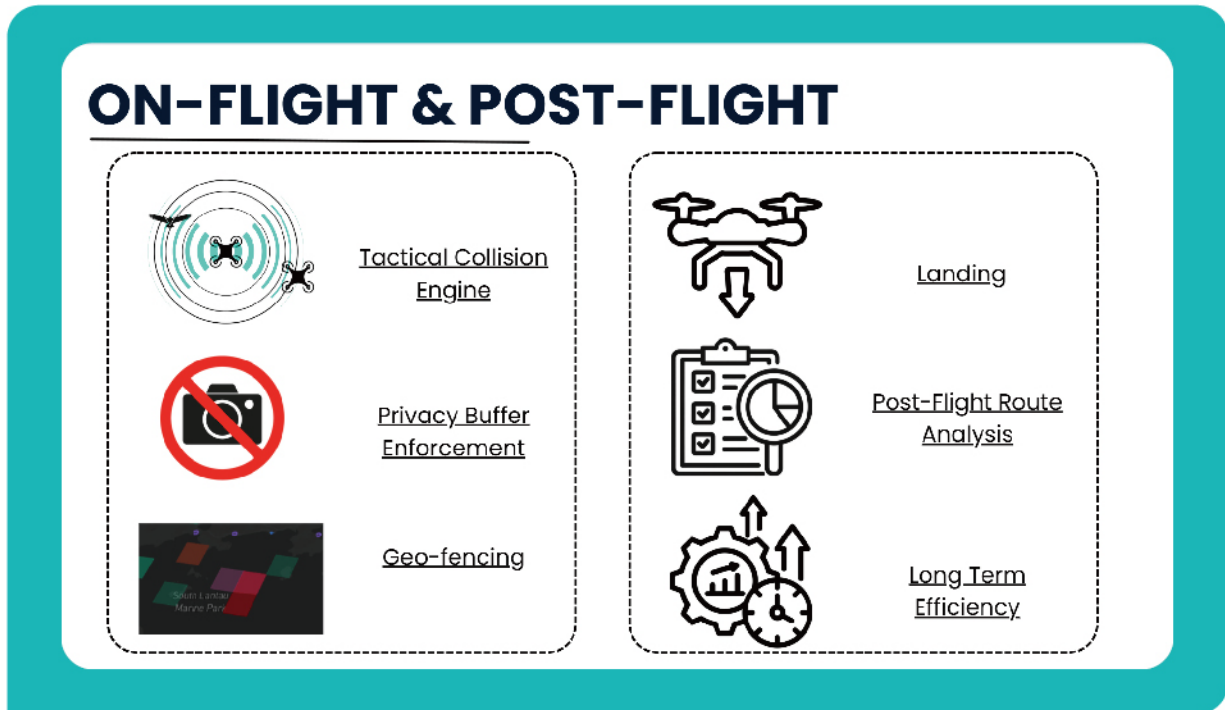


## THE PROPOSAL

**ORBITRON** is a city-wide semi-decentralised drone traffic management system for Hong Kong that uses a smart 3D airspace grid, AI flight planning, and block chain to ensure safe, fair, and efficient drone operations across the city.

- 1. 4D Airspace Grid** : Divides HK's sky into precise, real-time managed cells across 5 altitude bands with time as the 4th dimension.
- 2. AI Flight Planning** : Checks routes for conflicts, weather, and congestion before every flight.
- 3. Credit Auction System** : Fair VCG-based bidding for airspace, with bonuses for eco-friendly drones.
- 4. Layered Collision Avoidance** : AI pre-checks, real-time collision prediction, and a physical Safe Fall parachute.
- 5. Blockchain Audit Trail** : Every flight and safety event permanently recorded and tamper-proof.
- 6. Privacy Protection** : Cameras auto-restricted near homes; facial recognition blocked system-wide.
- 7. Counter-Drone Security** : Every registered drone is verified via public and private key cryptography; any unregistered drone is instantly flagged and reported to relevant authorities.





## BENEFITS & IMPACT

**ORBITRON** delivers safer skies through AI collision avoidance and real-time weather monitoring, while its VCG auction system ensures fair and transparent airspace access for all operators. ESG incentives drive greener, quieter drone operations across the city, and built-in privacy protections strengthen public trust among Hong Kong residents. Regulators benefit from a tamper-proof blockchain audit trail that supports confident policy expansion, while scalable drone operations unlock significant economic growth. Over time, accumulated flight data and traffic heatmaps will guide smarter government decisions on drone highways and 5G infrastructure development.

## THE FUTURE

- **Phase 1 (Now) — Proof of Concept** — A fully working demo showcasing the core system: 3D airspace grid, AI flight deconfliction, blockchain logging, credit auction, and a simulated environment with 50 drones to validate the concept.
- **Phase 2 (6 Months) — Live Deployment** — Real-world rollout adding physical privacy hardware on drones, an active counter-drone detection system, and time-series forecasting to predict and manage airspace demand.
- **Phase 3 (12+ Months) — Full Scale** — Convolutional Neural Networks (CNNs) combined with deep learning AI for advanced congestion management, Beyond Visual Line of Sight (BVLOS) flight corridors enabling longer-range drone operations, and a full carbon credit market rewarding environmentally responsible operators.

## Second Runner-up

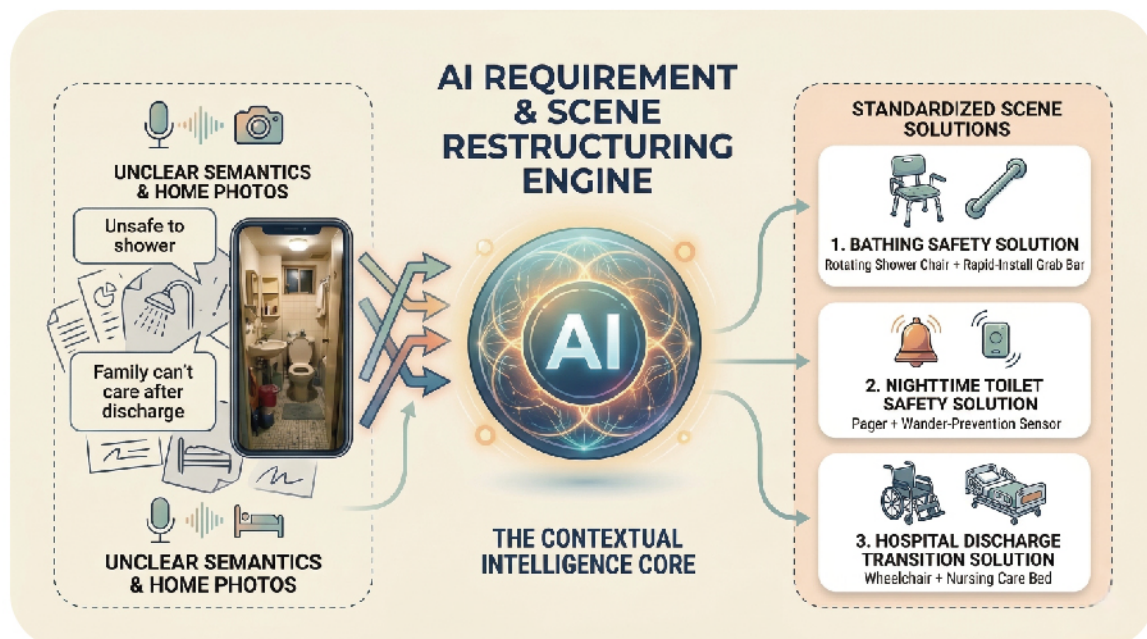
# Jockey Team

AI+IOT-Driven precision reach and intelligent hub solution



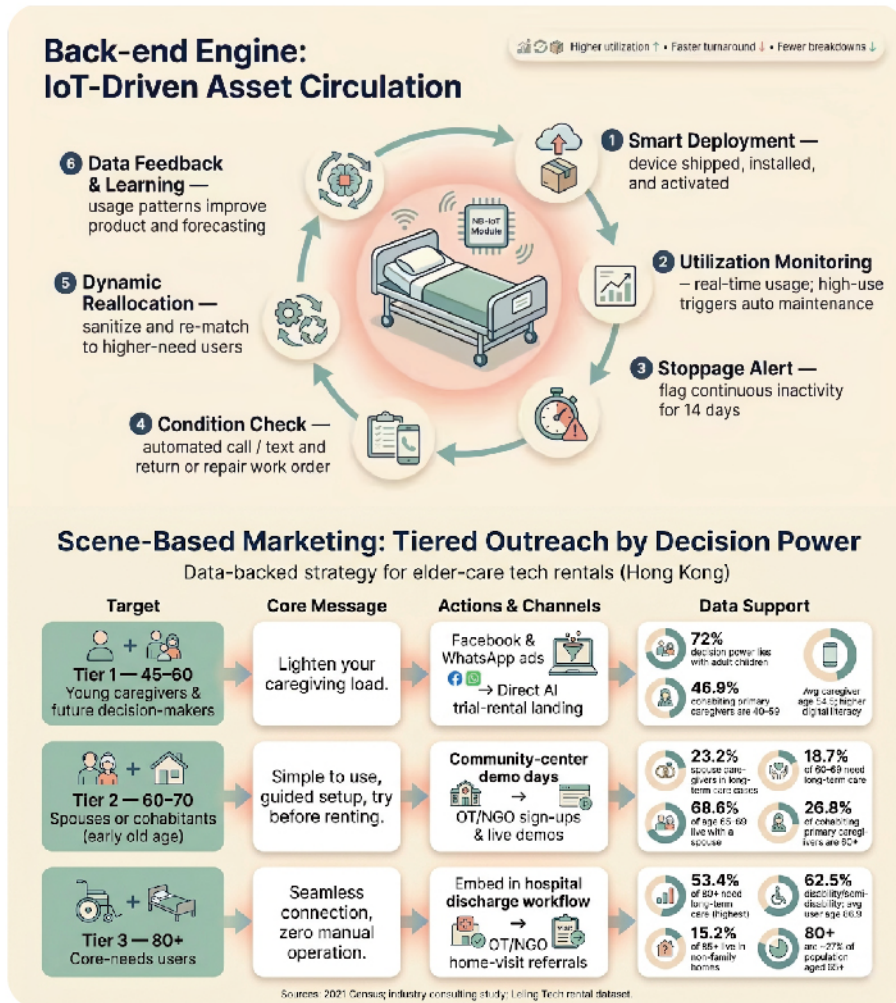
### THE CHALLENGE

This solution addresses systemic disruptions in data and asset circulation, including data fragmentation, extremely low circulation rates, regional supply-demand imbalances, and polarised usage rates. These interconnected issues lead to operational inefficiency, unequal resource access, and reduced overall effectiveness across the system.



## THE PROPOSAL

The solution leverages an AI multimodal model that combines semantic recognition and image recognition to unify multi-source data. It adopts a layered outreach strategy structured according to decision-making authority to improve coordination and delivery efficiency. It also implements IoT-driven dynamic asset chain flow to enable real-time tracking and flexible redistribution of assets.

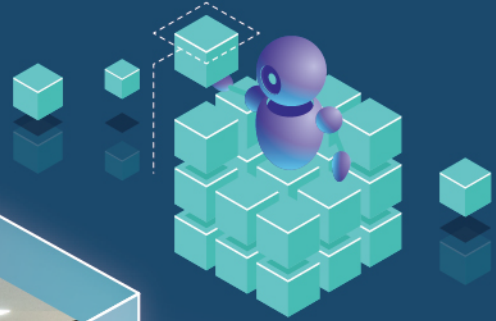


## BENEFITS & IMPACT

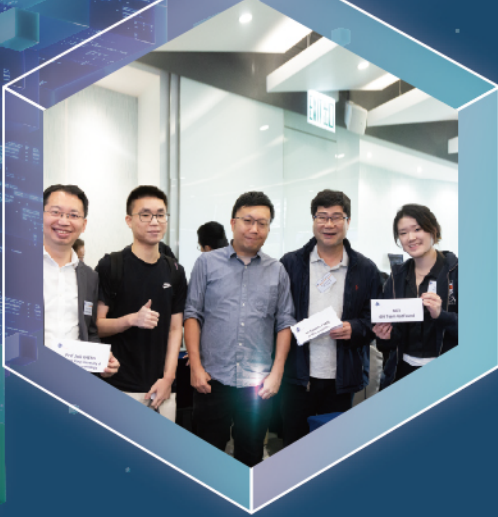
This innovation accelerates the organisation’s digital transformation. It extends device access to more people in need, helps users find suitably matched products more easily, and improves overall resource utilisation, which in turn supports positive ESG performance.

## THE FUTURE

Future development will focus on integrating front-end AI products to enhance user experience, fully implementing the layered outreach strategy across all channels, and analysing the expected benefits and costs associated with large-scale IoT solution deployment.



# BEHIND The SCENES



# Organising Committee

## Chairman

### **Mr Louls MAH**

Director - Group Information Technology, Maxim's Group

## Members

### **Mr Brian CHAN**

ERP Project Director, Gammon Construction

### **Mr William CHAN**

Chief Information Officer, CUHK Medical Centre

### **Dr Toa CHARM**

President, GS1 HK IoT Industry Advisory Council;  
Founding Chairman, Data & AI Literacy Association

### **Prof Jack CHENG**

Professor and Associate Head, Department of Civil and Environmental Engineering,  
The Hong Kong University of Science and Technology

### **Ms Mignone CHENG**

Chief Marketing Officer, GS1 Hong Kong

### **Ar Ada FUNG, BBS**

Founding President, Hong Kong Alliance of Built Asset &  
Environment Information Management Associations

### **Mr Argon HO**

Chief Commercial Officer - Group ICT Business, HGC Global Communications Limited

### **Mr Henry LI**

Head of Industry Partnership, Hong Kong Cyberport Management Company Limited

### **Mr Stephen LIU**

Head of Channel Sales, Check Point Software Technologies Limited

### **Ms Betty LO**

Head of Project Management Office, Jebsen & Co. Limited

### **Ms Joanne MO**

Director, Digital Strategy & Transformation, Swire Coca-Cola Limited

### **Ir Susanna SHEN, MH**

Board Member, MTR Corporation

### **Mr Ricky SIU**

Senior Vice President, Mobile Product & Solution Development, Commercial Group, HKT Limited

### **Mr Patrick TSANG**

Senior Advisor, Information & Communication Centre, Chow Tai Fook Jewellery Group

### **Mr John WONG**

General Manager, SP Infinite Technology Limited

### **Mr Lance YEUNG**

Assistant Director - Data Governance and Management,  
Hong Kong Science & Technology Parks Corporation

\*By alphabetical order of Surname

# Acknowledgement

## Judges

---

**Mr Brian CHAN**

ERP Project Director,  
Gammon Construction

**Dr Toa CHARM**

Founding Chairman,  
Data & AI Literacy Association

**Ar Prof Ada FUNG, BBS**

Founding President,  
Hong Kong Alliance of Built Asset &  
Environment Information Management Associations

**Mr Argon HO**

Chief Commercial Officer - Group ICT Business,  
HGC Global Communications Limited

**Mr Martin IP**

Lead Technologist, Greater China,  
Check Point Software Technologies Limited

**Mr Henry LI**

Head of Industry Partnership,  
Hong Kong Cyberport Management Company Limited

**Mr Louis MAH**

Director - Group Information Technology,  
Maxims's Group

**Ms Joanne MO**

Director, Digital Strategy & Transformation,  
Swire Coca-Cola Limited

**Ir Susanna SHEN, MH**

Board Member,  
MTR Corporation

**Mr Ricky SIU**

Senior Vice President, Mobile Product & Solution  
Development, Commercial Group, HKT Limited

**Mr Sean TAN**

Information Technology Director, Jebsen Group,  
Jebsen & Co. Limited

**Mr Willie VU**

Head of Solutions Architecture, Hong Kong  
Amazon Web Services

**Mr Lance YEUNG**

Assistant Director - Data Governance and Management,  
Hong Kong Science and Technology Parks Corporation

## Mentors

---

**Mr Brian CHAN**

Gammon Construction

**Mr Matthew CHAN**

Dynamic Flywheel Digital

**Mr Terence CHAN**

AS Watson Industries Limited - Watsons Water

**Mr Tony CHAN**

Esri (China) Hong Kong

**Dr Toa CHARM**

Data & AI Literacy Association

**Prof Jack CHENG**

The Hong Kong University of Science and Technology

**Ms Joyce HO**

The Hong Kong Council of Social Service

**Mr Samuel HUI**

Hong Kong Broadband Network Enterprise Solutions

**Mr Stephen JANG**

HKT Limited

**Mr Eric KWAN**

HKT Limited

**Mr Alvin LEE**

Hong Kong Electronics & Technologies Association

**Ms Flora LEE**

Cobalt Fashion (Hong Kong) Limited

**Mr Kinsen LEE**

Hong Kong Internet of Things Alliance

**Mr Henry LI**

Hong Kong Cyberport Management Company Limited

**Mr Keith LI**

Hong Kong Wireless Technology Industry Association

**Mr Teddy LIU**

MentorsHub

**Ms Betty LO**

Jebsen & Co. Limited

**Mr Louis MAH**

Maxim's Group

**Ms Karen TAM**

Cyberport Mentorship Services

**Mr Patrick TSANG**

Chow Tai Fook Jewellery Group

**Dr Jacob WAI**

Toppix Holdings Limited

**Mr John WONG**

SP Infinite Technology Limited

**Mr Andy XING**

DFI Retail Group

**Mr Andrew YEUNG**

Cobalt Fashion (Hong Kong) Limited

**Mr Lance YEUNG**

Hong Kong Science and Technology Parks Corporation

**Mr Benson ZHENG**

DFI Retail Group - Mannings

\*By alphabetical order of Surname

Organiser



Co-organisers



Funding Organisation



Technology Partners



Diamond Sponsors



Gold Sponsors



Silver Sponsor



Venue Sponsors



Media Partners



Supporting Organisations



GS1 Hong Kong
22/F, OTB Building, 160 Gloucester Road, Wanchai, Hong Kong
Tel: +852 2861 2819 | Email: info@gs1hk.org | Fax: 2861 2423
www.gs1hk.org

GS1 is a registered trademark of GS1 AISBL.
All content copyright © GS1 Hong Kong 2023