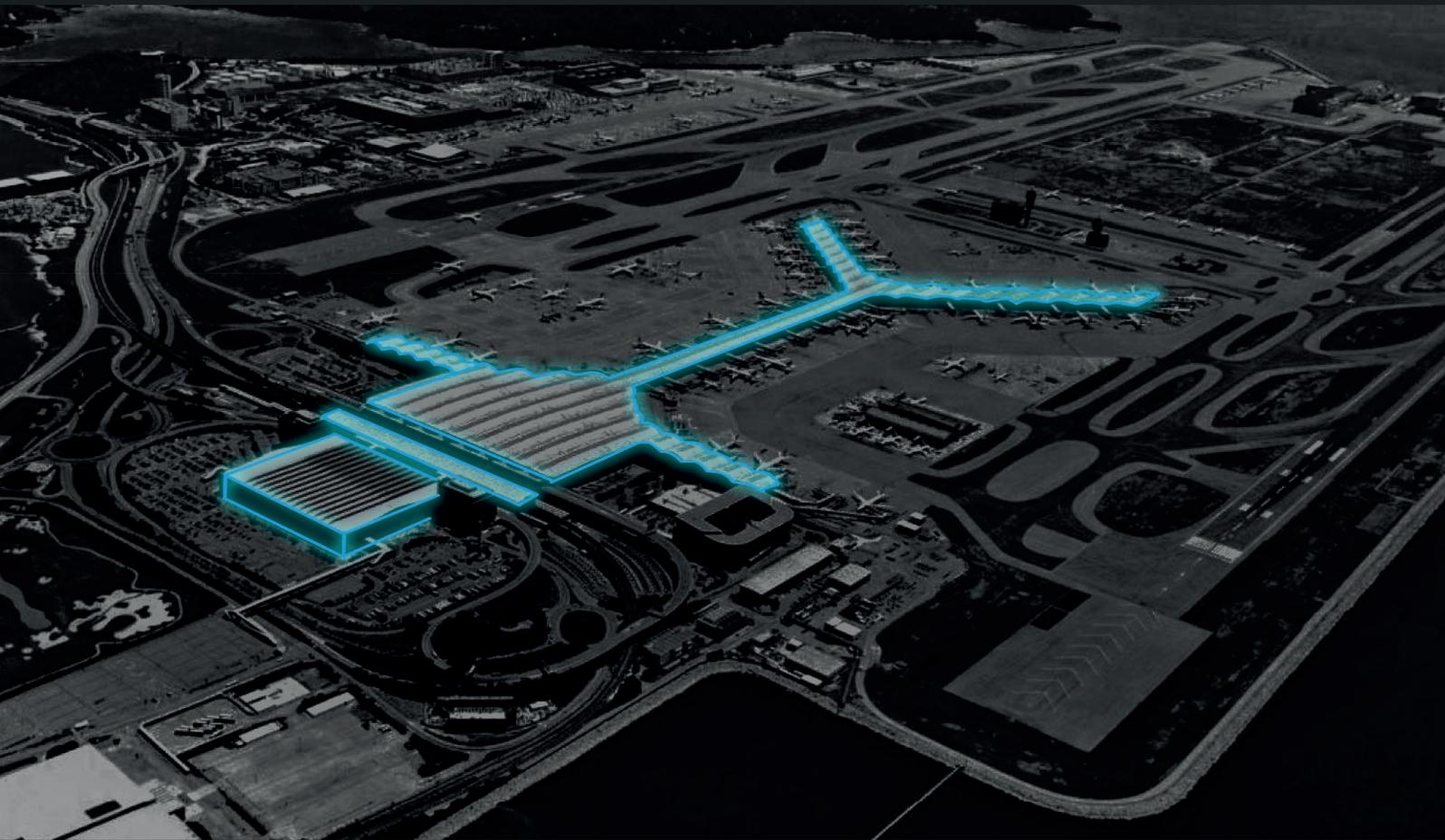


Case Study: Hong Kong International Airport Terminal 1



'Hong Kong's vision is developing itself into a smart airport, which aims to apply innovation and technology to create an enjoyable and hassle-free experience for passengers, as well as enhance the operational efficiency.'

Passenger Terminal World, September 2019

Case Study : HKIA Digital Twin

A Single Source of Truth

Hong Kong International Airport is the commercial airport serving Hong Kong, built on reclaimed land on the island of Chek Lap Kok.

The airport has been in commercial operation since 1998.

The Overall Digital strategy for the Airport Authority Hong Kong is to digitize the Airport facility, creating a Digital Twin of the entire 12.5 sq km site.

Over 70,000 Employees work within the Airport facilities.

PROJECT DETAILS AND SCOPE

- > Initially to create a Digital Twin for Terminal 1
- > The Gross Floor Area to Terminal 1 (T1) is circa 700,000sq m, covering nine floors
- > The data is created via multiple data sources - initially from As-Built 2D CAD information and then from laser scan surveys.
- > The project is to deliver BIM Models for Architecture, Structural and Civil Engineers, MEP and Special Airport Services, achieving LOD500 deliverables.
- > The Digital Data is to assist with two aspects of the Airport - Asset Management and Facilities Management together with providing visualization for future development and expansion.

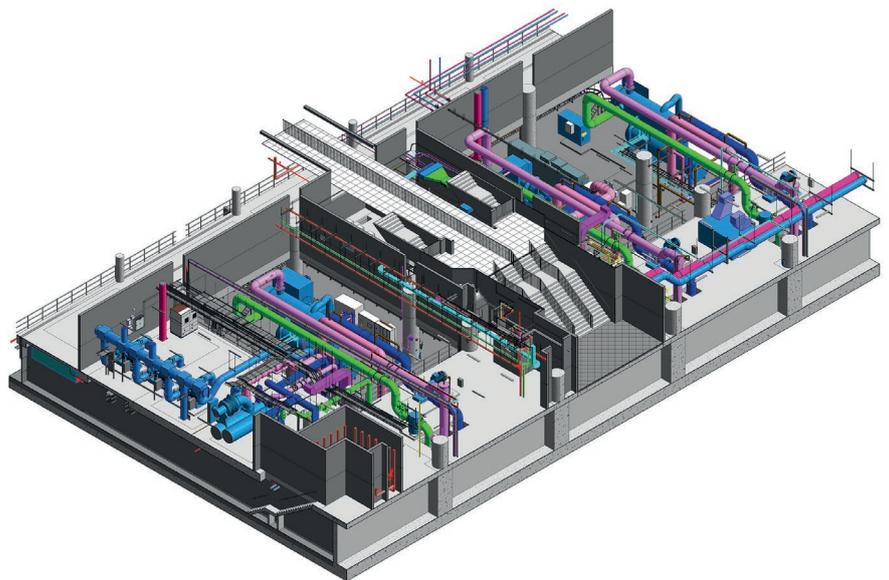


Image taken from model: Airport plant room

Case Study: HKIA Digital Twin



Hong Kong International Airport Digital Twin featured in Passenger Terminal World

PROCESS

- > The existing airport zones were mimicked using a multidiscipline BIM Software model containing architectural, structural and mechanical, electrical and plumbing services.
- > This data provided from the airports' asset management system was integrated with a geographical information systems (GIS) map to create the static state of the twin.
- > A development platform designed to integrate and create 3D models, used in video games and architecture was then used to navigate the 3D model of the airport in a photo realistic manner.
- > To bring the digital twin to life, the model is linked to real-time data from IoT devices throughout the airport, together with simulation tools, corporate applications and an enterprise analytic platform to enable HKIA to predict what could happen in the future.
- > All nine floors were captured in the Digital Twin from the apron level up to the roof, encompassing arrivals and departures with emphasis on passenger-facing areas.

Terminal 1 is now complete, remaining areas are due to be added to the model in time.

Case Study: HKIA Digital Twin

Start with the end in mind

Engage all key stakeholders within the airport in order to see how they use the data.

'The digital twins lifelike visualization helps the airport authority streamline our design review for new construction projects'

Andy Bien, Chief Information Officer
Airport Authority Hong Kong.

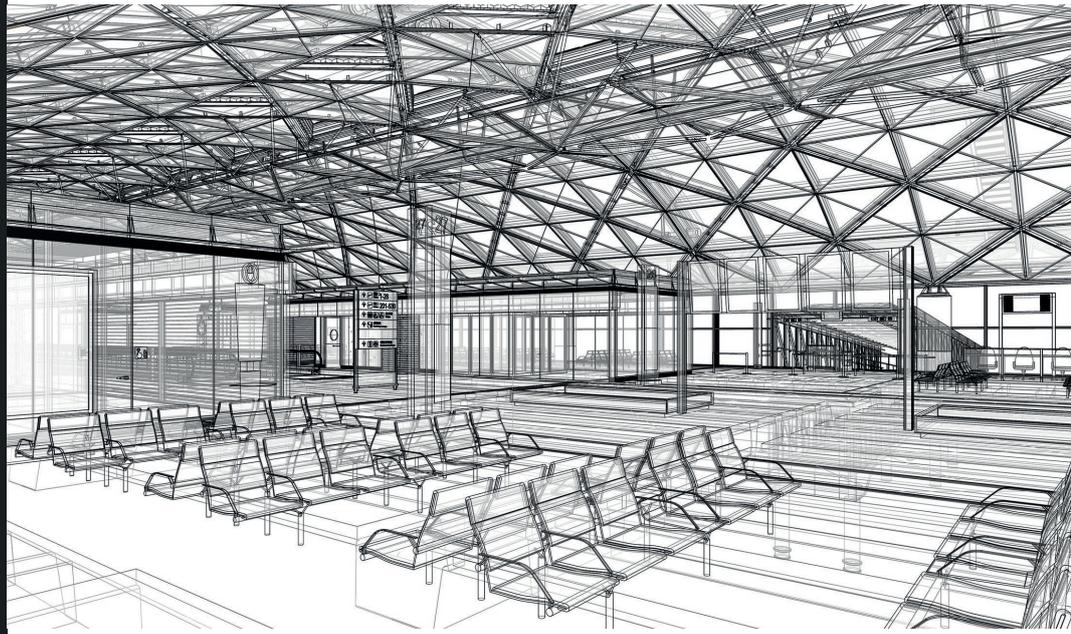


Image taken from model: Departure lounge wireframe and rendering.

Case Study:
HKIA Digital Twin

'Our digital twin is a virtual 3D model in which data from different sources can be integrated, made available instantly, visualized in a human-centric interface and analysed to make predictions in an explainable way.'

Andy Bien, Chief Information Officer
Airport Authority Hong Kong.

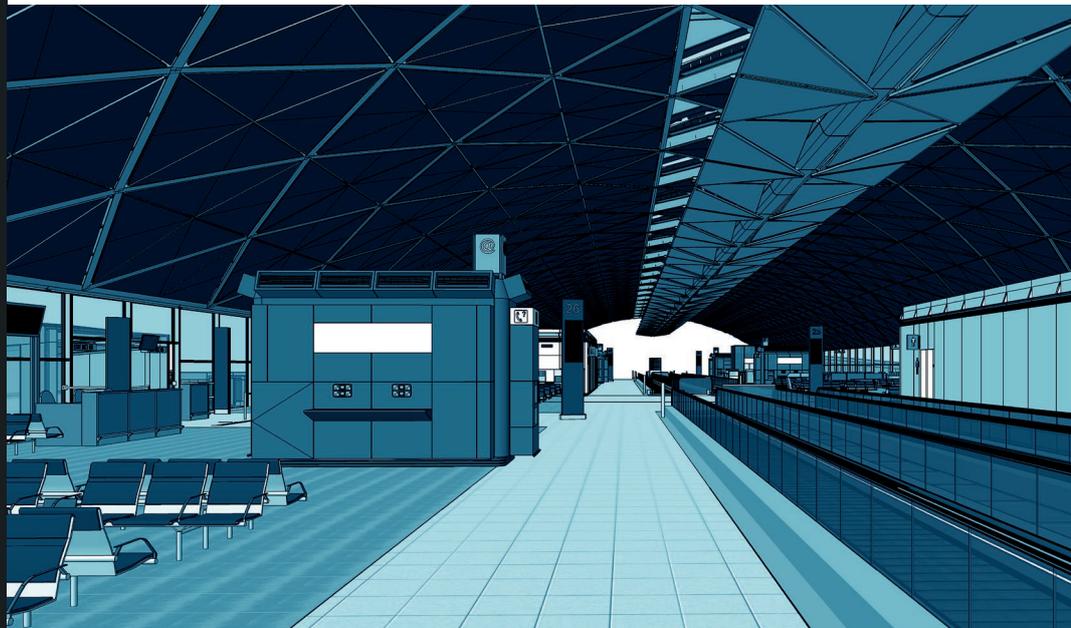
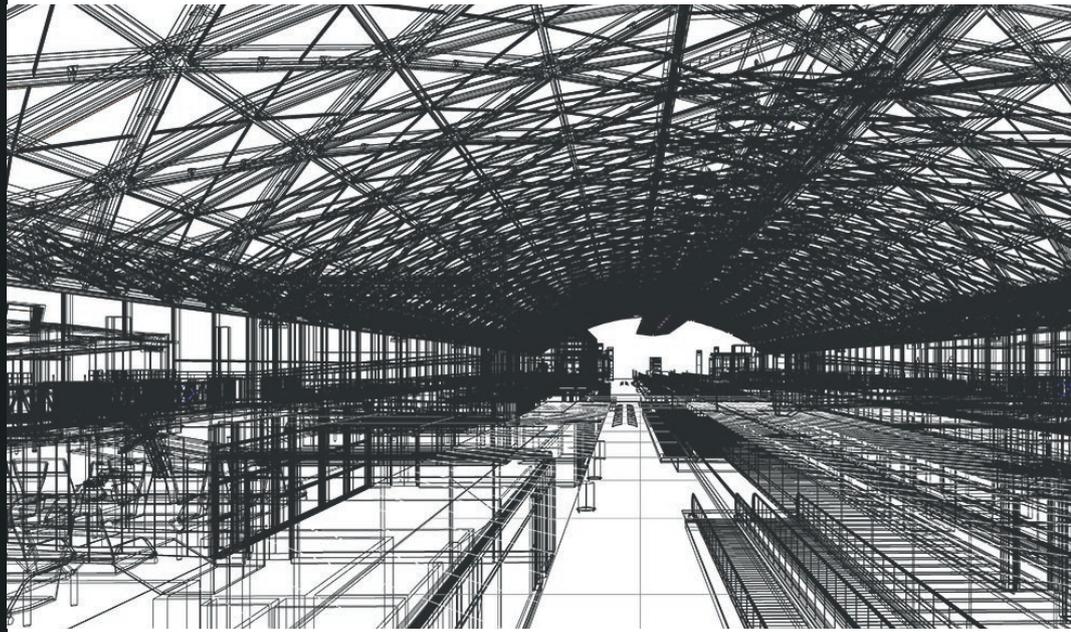


Image taken from model: Central concourse wireframe and rendering.

digital twin unit⁺

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