

Empowering Smart Airport City with Digital Twin

Airport Authority Hong Kong

SILVER



Introduction of the Project

The Airport Authority Hong Kong (AAHK) vision is to develop a Smart Airport City at Hong Kong International Airport (HKIA) and align with the Greater Bay Area Development by HKSARG. This would solidify the airport's position as a key aviation hub. Cutting-edge innovative technologies such as Building Information Modelling (BIM) for Architecture, Engineering and Construction AEC (AEC) and a Geographic Information System (GIS) centric Digital Twin for Operation and Maintenance (O&M) in enhancing revamp project safety, constructability, maintenance and operational efficiency to cater for future demands, projected at over 120 million passengers by 2035. The digital transformation journey integrates GIS and BIM to form a digital twin, a 3D replica of HKIA's infrastructure.

AAHK adopted a GIS-centric Digital Twin with BIM embedded, performing as a combination of BIM and GIS and backed by artificial intelligence, big data, and spatial analytics. HKIA Digital Twin creates dynamic digital models that adapt alongside physical

changes, enabling predictive decision-making and comprehensive airport management, not only daily operations and maintenance processes by consolidating geographic information across airport departments but also an integrated approach that facilitates the entire building lifecycle, from design and construction to operation and asset management.

HKIA Digital Twin accommodates dynamic and real-time data integration through dedicated 5G bandwidth infrastructure. This infrastructure utilises IoT devices and big data intelligence to holistically monitor and analyse operation data. This technology fusion empowers the Airport Authority Hong Kong to optimise airport operations and enhance overall efficiency.

