Technovation turns Hong Kong into a hive of activity

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As it celebrates its 20th birthday, Hong Kong International Airport (HKIA) emphasises innovations in terminal and airside areas. *Ben Vogel* **reports**

Hong Kong International Airport (HKIA) is a global player in the air cargo sector (the busiest airport in the world by tonnage in 2017), as well as a major hub for passenger traffic. The provisional 2017 total of 72.9 million means it is the eighth largest airport in the world by passenger volume, behind only Beijing Capital International in the Asia-Pacific region.

The operator, Airport Authority Hong Kong (AAHK), competes in a crowded marketplace. Neighbouring airports in the Pearl River Delta on the Chinese mainland are expanding: they offer stiff competition for local, regional and global traffic, so AAHK cannot afford to rest on its laurels.

The Automated Airfield Ground Lighting Scanning and Inspection System (AGLSIS) in action at Hong Kong International Airport. (AAHK)

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Competition and organic growth not only spur development of new infrastructure (embodied in the AAHK Master Plan 2030 with the Three-Runway System at its core) but they also motivate research, development, operational testing and deployment of advanced new technologies for terminal and

airside areas at Hong Kong, so that the airport can differentiate itself in terms of service quality, operational efficiency and the overall passenger experience.

HKIA faces capacity constraints in terms of runway slots and terminal space, at least until the Three-Runway System opens in 2024. Meanwhile, the global trend for passengers to use smart technology (for automation, mobility, personalisation and self-service) drives demand for airports to improve their value proposition to the travelling public.

In this context, the airport is implementing a digital transformation programme that dovetails with the Smart City Blueprint laid down by the Hong Kong authorities. A focus on automation, mobility, personalisation and self-service aims to promote greater efficiency and superior passenger experience at HKIA.

AAHK already hosts an annual Technovation Conference and Exhibition, for local and international experts to discuss and showcase innovations that improve the passenger experience and boost operational efficiency. The most recent event, in November 2017, included demonstrations of virtual reality and technology for building design and airport maintenance. Exhibitors also showcased wearable devices and robots that can assist or improve airport operations.

Technovation projects described to *Jane's* during Passenger Terminal Expo in March 2018 included augmented reality for passenger wayfinding; iBeacon technology to deliver tailored messages and promotional offers; and next-generation, fully automated check-in kiosks (iCUSS).

The iCUSS system - co-developed by AAHK and Amadeus as the first hot-swappable battery-powered mobile check-in kiosk to be deployed at an airport - is powered by cloud-based, common-use software. The kiosk can function in self-service or agent-assisted mode.

"The iCUSS enables greater freedom and flexibility in serving passengers throughout their journey to and around the airport, which reinvents the check-in experience and allows HKIA to more efficiently accommodate an increasing number of travellers," said C K Ng, AAHK executive director of airport operations.

Meanwhile, video and data analytics enable AAHK to deploy resources more intelligently. The airport operator is developing real-time passenger analytics and customer relationship management capabilities, and predictive data analytics are being used to improve the availability of certain systems at Hong Kong International.

For example, AAHK worked with US-based BNP Associates to develop an Operational Modelling Tool (OMT) for baggage-handling systems. This software helps daily resource planning at Hong Kong, said Steven Yiu, acting deputy director for service delivery, by adapting to last-minute flight schedule changes, load variation, flight delays and other operational conditions. In particular, the Rapid Analysis Mode delivers fast analysis of the impact of changes to operational capacity and staffing requirements.

In the Advanced Analysis Mode, OMT also aids medium-term planning by identifying change requirements in future flight schedules, check-in assignments, baggage make-up configurations, and passenger processing.

Diving into a GSE pool

Resource allocation and optimisation also lies behind a ground support equipment (GSE) pooling policy at HKIA. "On the ramp, we procure essential GSE – cargo loaders, conveyor belts, passenger

stairs" Ngtold *Jane's* . We will position one set of equipment permanently on each parking stand." He added that AAHK will consider extending the pooling scheme to include other ramp equipment.

The pooling programme is being launched at the Midfield Concourse in HKIA, before being expanded to Terminal 1 and eventually the rest of the airport. As a result, Hong Kong will be the largest airport in the world to adopt GSE pooling.

[Continued in full version…]

(692 of 1462 words)

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