

# IT Changing Changi



## Randy Pizzi, Vice President and Managing Director of ARINC Asia/Pacific, describes the recent technology upgrades installed at Singapore's Changi Airport.

In September last year, the Civil Aviation Authority of Singapore (CAAS) awarded ARINC the contract to implement new check-in systems at the three main terminals of Singapore Changi Airport, including Terminal 3, which held its official opening recently.

The project was in line with CAAS' strategy of developing Changi into a world-class aviation hub by constantly reviewing its operational and technical infrastructure, and in support of the growing demands of its airline customers and passengers.

ARINC completed the work in just six months, and a successful handover took place in March. The project involved installing ARINC's iMUSE advanced common use passenger check-in and baggage message distribution technologies for Changi, including 500 new common use check-in counters and boarding gate workstations across the three main terminals. New technology for enhanced operational efficiency and improved passenger processing replaced the five-year-old common use check-in and boarding equipment at Terminals 1 and 2.

One main reason for airport congestion is often a lack of adequate check-in counters and staff to process passengers. This situation can be exacerbated by airline-owned check-in counters which can only process their own passengers. Hence, given the limited amount of space available at the departure hall, each airline is allocated a fixed number of counters, which may not be able to handle high passenger numbers efficiently.

ARINC's iMUSE is a common use platform technology that allows many airlines to share the same gates and check-in

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counters through a common workstation, thus maximizing airport operations efficiency. No major infrastructure upgrades from the airports and the airlines are necessary, as the technology can support both IP and legacy systems and is able to use existing resources through an open architecture. It also allows counter staff to use either the desktop or handheld terminals, further facilitating passenger processing as the need arises. At a time when airport floor space is expensive, a common use environment benefits both airlines and airport. Airlines will save money from using shared resources and the airport can fully optimize the floor space available.

A key challenge airports face in the light of increased passenger volumes finding a way to shorten passenger processing times. The world is much more wired (or wireless) these days, and passengers are more likely to opt for self service check-in and home boarding pass printing rather standing in line at check-in counters.

Changi Airport's systems provide infrastructure support for new applications such as 2D barcode boarding pass printing and reading. This is an initiative driven by IATA to simplify the business and help reduce the costs of airline operations. An added feature of ARINC's 2D Barcode application is its ability to generate 2D barcodes from its host data streams for airlines that do not have this capability. This enabled Changi Airport to be fully 2D Bar Coded Boarding Pass (BCBP)-ready, ahead of IATA's target timeline of 2010. New Common-Use Self Service (CUSS) kiosks can also be easily developed and installed, leveraging on the airport's iMUSE infrastructure, which allows for flexibility and scalability based on its growing requirements.



In Terminals 1 and 2, iMUSE was installed on existing check-in counters, based on a progressive migration schedule to ensure minimal disruption to airport operations. Robust testing was conducted with participating airlines to facilitate a smooth introduction. All Changi Airport's check-in counters are connected back to the server room, which is constantly monitored for system stability and performance. Technical support staff were put on standby round-the-clock, and hotlines set up for those who need technical assistance. Undertaking a project on such a scale required very close coordination with members of the Airline Operators Committee (AOC), ground handlers, CAAS and ARINC, to ensure that the specific requirements of airlines on the common use system were met, and that the change-over schedule was planned and well-executed, with minimal disruption to their operations.

An added advantage of the iMUSE infrastructure at Changi Airport is its flexibility and opportunities for upgrade. For example, at times of serious congestion, the airport and airlines are able to open up extra counters to serve passengers and clear queues, thus saving time and money for both passengers and airlines.

In addition, the wireless capability of iMUSE can support remote check-in at airport hotels and car parks, and facilitate the introduction and operations of mobile check-in carts, used in some airports today. iMUSE can also be upgraded to ARINC's new vMUSE, a common use platform that supports tomorrow's Common Use Passenger Processing Systems (CUPPS) technology. Other advantages of vMUSE are lower airport costs achieved by eliminating the need for custom printers and special paper stock for boarding passes, and the ability to support passenger check-ins by mobile phone, an increasingly popular option today.

The other system installed at Changi Airport is ARINC's BagLink. This is an advanced message distribution technology that enables airport baggage sorting systems to properly direct baggage to aircraft without delay. BagLink's sophisticated communications server collects baggage-routing messages from multiple airline hosts and distributes them efficiently to sortation and other airport systems for further processing.

BagLink is highly efficient because it takes full advantage of host lines already in place for passenger departure control. It fully complements iMUSE by using the common use gateways to send and receive baggage messages in standard IATA formats. This allows baggage handlers to know exactly where each bag is located – right down to the position within the container on-board the aircraft. In the event of a bag having to be removed from the aircraft before departure, it can quickly be found and identified with 100% accuracy,

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Right: BagLink is an advanced message distribution technology that enables airport baggage sorting systems to properly direct baggage to aircraft without delay.



using wireless scanners connected to the centralized database.

The Changi project exemplifies the way in which an airport can support the growing needs of its airline customers, who demand a technologically robust and scalable network for its applications. These applications are constantly evolving in terms of capabilities and complexity to offer passengers greater conveniences, and competitive differentiating services. Since it became operational, general feedback on the performance and reliability of the applications has been positive. CAAS and AOC are currently working with ARINC on expanding the project to include additional equipment and other technologies, such as CUSS kiosks and off-airport check-in.

Global airports are constantly faced with numerous challenges – being operationally efficient, conforming to industry guidelines, enhancing the passenger experience, dealing with growth, and so forth. Airport operators rely on many sources to determine the best path forward, and the role of technology is becoming increasingly more significant in helping to provide solutions. ARINC's project at Changi Airport is one of many similar projects taking place throughout the industry, and it is an exciting example of how we are moving into the future of airports, one step at a time.



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