Airport Efficiency Ready for Takeoff with Digital Tech

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Going to the airport is typically not an easy or smooth experience. Passengers may rush to make their plane, only to find someone else is holding up the flight. If someone is on a tight schedule, for instance, they must catch a connecting flight, and delays can disrupt or ruin the entire trip.

All this can end up hurting an airline's reputation and bottom line, especially if the situation could have been avoided. Disjointed airport operations are often to blame. Many tasks must be completed before a plane taxis off the runway: bags loaded, refueling and cleaning done, meals delivered, passengers accounted for, etc. And all this information must be relayed to the pilot and other operational staff. But each servicing team has its own communications channel, and they can't always inform others of their status. The result is confusion and unnecessary delays that erode airport efficiency and cost airlines and passengers $33 billion a year, according to the United States Federal Aviation Administration.

There is a better way. Recent technology advancements can reduce flight delays by giving all service teams a common, instant, and secure communications system connecting them with operational staff on any device. Airports can also build stronger connections with passengers, learning more about them through smart digital signage and location-based Wi-Fi—and generating new revenue in the process.

Making Airport Operations More Efficient

For airports, getting planes in and out as quickly as possible is a key metric of success.

“The goal is to improve the turn time of the plane, because if you can do that, you make the airport more efficient,” says Andy Manuel, Global Solutions Architect and Business Development Manager for Transportation at Cisco, a global technology leader.

At Bangalore International Airport Limited (BIAL), improving turnaround time was especially critical. The third-busiest airport in India, BIAL was growing at a rate of 20% a year before the pandemic. By 2019, it was managing 240,000 flights and 33 million passengers a year. Airport executives realized that expanding the facility to meet this growing demand would be only a short-term fix.

BIAL worked with Cisco and its partners to develop a plan for implementing IoT, computer vision, analytics, and unified communications technologies. The goal was to streamline and improve the flow of information and gain new insights into operations (**Video 1**).

Watch Video At: https://youtu.be/sX2pyoWJrxo

Video 1. Strategic deployment of Cisco’s IoT, computer vision, analytics, and unified communications technologies improved efficiency at Bangalore International Airport Limited. (Source: Cisco)

The airport installed specialized sensors to track information about the location, speed, and altitude of arriving and departing aircraft with greater precision than radar. Other IoT sensors were attached to fuelers, baggage loaders, catering vehicles, stepladders, and other equipment. This enabled staff in the central control center to “see” the objects—and the activity surrounding them—in real time. IoT data was analyzed by an application focused on turnaround time metrics, helping the airport find ways to improve.

Cisco also unified BIAL's communications. Ground staff and airline operators can now instantly bring one another up to speed on any kind of device without worrying about radio frequency or location interference, a common problem at gates and tarmacs.

"There are a number of areas that require constant communication," Manuel says. "Staff needs to make sure food service arrives at the gate at the right time and the plane is cleaned and sanitized before passengers reembark. You may be able to leave five minutes earlier if you know in real time you've got everything loaded and ready to go."

As more #data is collected and analyzed, it will point the way for #airports like @BLRAirport, and others across the globe to handle additional traffic with machine-like precision. @Cisco via @insightdottech

With so much information flying back and forth, security is a paramount concern. With Cisco's solution, it starts at the chip level, with Intel®-embedded protections. A zero-trust system extends granular policy controls across all networks, applications, and devices.

The chips are also able to deliver analytical insights in real time and scale to meet airports' growing needs. Speedier communication and data insights have greatly improved efficiency at BIAL, and the airport is now able to get two additional airplane "turns" per day in each stand, or aircraft parking area.

Improving the Passenger Experience with Airline Technology

In addition to boosting efficiency, technology can make the journey smoother for travelers. An airport in the UK is experimenting with a computer vision and AI system, developed by Cisco and its partner WaitTime. Together, they can analyze anonymized passenger count and behavior in real time, helping to improve traffic flows and reduce passenger congestion. It also provides useful information to passengers themselves.

For instance, a digital sign or app can tell passengers the wait time at certain shops.

Analytics gathered from mobile devices of passengers who opt into Cisco's system could allow airlines to deliver a new level of customized service. If the airport knows a returning customer always gets a coffee before his flight and he is running late, they could deliver the coffee to the gate for him.

Going even further, the airline can detect the location of a late passenger and send someone to collect them, instead of trying to alert them over the loudspeaker—which many people ignore or don't hear.

In other cases, if the operations staff can see a passenger hasn't even arrived at the airport yet, they could substitute a standby passenger and start to get ready for takeoff.

Generating More Revenue for Airlines

Using the right technology can not only make airports more efficient; it can also boost the bottom line. AI and computer vision can tell airports how many people congregate in front of a shop and how many decide to enter. With this information, airports can charge more for retail rentals in high-traffic areas.

Sharing traffic data with advertisers could also create another income stream.

Another potentially large source of income could come from providing unified Wi-Fi connectivity. At most airports, cellular service providers like AT&T, Verizon, Vodafone, and others build out their own infrastructure.

"If you have multiple service providers, you might have four separate installations and separate networks," Manuel says. "The opportunity would exist to build out a neutral host infrastructure for the airport. With Cisco technology powered by Intel® inside, the airport can provide a single tower and back-end infrastructure foundation for all of them. Cellular service providers can leverage this infrastructure and create a potential additional revenue stream for the airport."

As more data is collected and analyzed, it will point the way for airports like BIAL and others across the globe to handle additional traffic with machine-like precision while at the same time improving customer service.

These are just some of the ways digital technology is transforming the airport experience for operational staff, commercial tenants, and passengers—before, during, and after the journey.

This article was edited by Christina Cardoza, Associate Content Director for insight.tech.