NAVIGATING UNCERTAINTY

Investing in technology to measure, monitor and control the airports of today and tomorrow.

• • • • • • • • •

by **STU GARRETT**, Business Development Manager,
and **LORI TOP**, Aviation Projects Director

In an environment of uncertainty, resilience in the face of disruption is a must for airlines and airports. Key investments in technology to harness and generate data can establish a baseline of resilience, while creating building blocks for future leaps.

At physical campuses like airports, an enterprise's facility utilization and knowledge of how space is being used is especially relevant to resilience. This is true in aviation both when passenger growth is driving expansion and — as we have seen this year — when there's a sharp contraction in operations.

A NEED FOR FASTER, BETTER TECHNOLOGY

The growing need for remote interactions amid the COVID-19 pandemic has highlighted a demand for connectivity and related technologies such as Wi-Fi 6, the next generation of Wi-Fi, and 5G networks. The lightning-fast speeds, near-instantaneous communications and increased connection density that come with 5G make it primed for remote interactions and for leveraging information to make improvements in operational expenditure, passenger communication, passenger journey, staffing and facility management.

Through improvements to 5G and Wi-Fi connectivity, partnered with key physical enhancements and data analytics, airlines and airports can realize the benefits of passenger flow management. This includes the ability to geolocate passengers to understand where they are in the airport and facilitate their wayfinding to security checkpoints, retail and the gate. Additionally, airports may want to consider harnessing customized controls of temperatures, lighting levels and sound levels to adapt to individual locations. This type of measurement and monitoring not only saves energy, it can also lower passenger anxiety. With real-time passenger awareness, it is also easier to understand how to ebb and flow staff to meet customer needs. Data becomes more and more powerful as it becomes more available.

Airports and airlines aren't the only entities to gain from improved wireless or cellular technologies; passengers would also reap the rewards throughout their entire journey with improvements in information exchange. From traffic updates to construction notifications, gate announcements and more, the advantages are endless.

INVESTING IN TECHNOLOGY

Revenue in the aviation environment has many traditional sources. Monetization of data has become commonplace in industries that touch the aviation ethos and yet it has not been explored widely inside airport walls. Greater wireless connectivity paired with data sources can provide much-needed revenue streams. For example, an airport's concessions program knows how much money was spent at a specific retailer storefront — such as a coffee shop. But does the airport know how many people approached the coffee shop, saw the queues and then decided to go elsewhere? Gross receipts for the previous month serve as datapoints; knowing the volume of lost customers is information, and information can be sold and leveraged.

But to seize any of these opportunities, decision-makers first need to invest in the infrastructure and built environment improvements in order to gather more data. Installing upgrades to a single surface in the airport can have far-reaching implications on the ability to provide and utilize data. The incorporation of a digital ceiling utilizing Power over Ethernet (POE) LED lighting, temperature sensors, light sensors, speakers, cameras and beacons, along with 5G connectivity and the appropriate IT backbone, provides the necessary foundation for capturing data. This data can be utilized and analyzed for benefits both known and unknown. No longer is Wi-Fi access limited to hard-piped Wireless Application Protocols (WAPs) with both power and data connectivity located every 30 feet across the airport.

HARNESSING THE DATA

Whether in times of rapid expansion or periods of severe contraction, knowledge of physical assets is crucial. But that knowledge requires data, which requires sensors or other input sources that are networked. As retrofits are completed on older equipment, and more and more systems arrive from original equipment manufacturer (OEM) factories with embedded sensors, conversations about bandwidth must be married to broader network coverage in general. Capturing the data allows

for the measurement, monitoring and control of systems throughout the airport environment.

The value of data extends to physical assets. Although the connection or value proposition might not be obvious, the state or condition of a physical asset carries broad implications, especially in cases such as passenger experience.

Consider the impact of restroom cleanliness, temperature on a boarding bridge, modifications of light levels, and colors to identify boarding sequences. Broader, long-term elements such as asset-life cycle replacement cannot be overlooked. Knowing the condition and performance of a physical asset drives discussions related to capital budgeting, such as replacements or upgrades, and operating expenses, like maintenance programs.

SKY'S THE LIMIT

While it's hard to anticipate industry disruption or other types of socioeconomic upheaval, aviation can take steps now to minimize and mitigate future turbulence. Combining 5G connectivity and specialized data collection tools can lead to improvements in multiple arenas, including workforce efficiencies, energy savings and space optimization. Passenger demands for immersive, interactive experiences in consumer technology will continue to strain airports that are not prepared as those same demands converge onto the journey of travel.

Connectivity allows airports to glean more data, and with rigor and appropriate analytical tools that data becomes invaluable information for decision-makers. Operations can flex as daily, seasonal and disruptive demands on resources or financial constraints emerge. Having the right information at the right time allows for insightful direction without guesswork or wastefulness.

• • • • • • • • • •

in **Stu Garrett:** linkedin.com/in/stugarrett
Lori Top: linkedin.com/in/loritop