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Joe Petrie
Editor-in-Chief

Sustainability by Any Other Name

It's pretty apparent now the climate we're operating in has changed. Literally.

Politicians in Washington can argue about climate change or global warming and if it's real or not and if so, what's causing it. That's all fine for them, but for the rest of us it's pretty apparent there isn't time to delineate words. We need to think differently about our cities and the critical infrastructure serving them.

We've seen Hurricane Harvey decimate Houston and bring its air traffic to a halt in the nation's fourth largest metropolitan area. Hurricane Irma ripped through Florida, taking countless airports and airfields out of commission in the southeast, including Miami International Airport, one of the critical ports of entry into the U.S.

And throughout the year we've shared stories from across the nation looking at airports all over North America with new challenges facing them in part due to climate change. Even cities like Las Vegas are now taxed with high temperatures forcing leaders to rethink how and when air traffic comes in.

The nation needs to put resiliency first with our entire critical infrastructure going forward. Without needed changes, we're going to see these economic cogs ripped asunder again and again as the world around us changes. If we don't, more tax dollars are going to fritter away on rebuilding the same thing over and over again, just waiting for it to collapse once more as another weather event comes in.

Climate change and global warming are loaded words for a lot of people on both sides of the spectrum. The topic can spark a lot of passionate opinions and energize a lot of people. However, it's more important than ever the leaders of this industry — the ones who actually make the economy move — must keep focused with the real issues at hand while the politicians bicker.

Bill Shuster@RepBill-Shuster
Congratulations to @ChrisCassotis on being recognized for your hard work and leadership at @PITairport!

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Congrats to @MCO for ranking highest among mega airports in our latest #AirportStudy!

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Kansas City Readies New Terminal for a Vote
The battle to build a new terminal at Kansas City International Airport is moving to voters in November. Regional leaders selected a plan for a new $1.2 billion 35-gate terminal at the airport and residents will finally get their say on the concept, which will transform the facility for the next-generation of commercial air travel.
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Keeping Airport Passengers Moving: A Multimodal Approach
Commercial air traffic is expected to hit 7.2 billion travelers by 2035. Airports Council International-North America says member airports need to invest an additional $100 billion the next four years just to stay ahead of the growth. While a lot of this investment will go to new and expanded terminals, it's important to keep streamlining the passenger experience in mind.
www.AviationPros.com/12363100

By Roch Muraine

Transportation 4.0:

Providing Door-to-Door Travel in a Multimodal Transportation System

Demands from travelers to stay connected and new technology can connect passengers on their entire journey, disrupting the entire travel experience.

The technology to create seamless or connected multimodal transportation exists, but the majority of services are still being delivered to the end customer in a disconnected, piecemeal way. For example, a journey from A to B might involve switching from a bus to a train and then a ferry, with tickets purchased for each separate stage from the different operators providing transportation. In order to improve services and keep up with the huge growth in numbers of people traveling throughout the world, we need to look at new ways to streamline services for travelers and simplify the provision of services for operators.

TRANSPORTATION 4.0 EXPLAINED

All things point to a future that lies in multimodal transportation, where different forms of transportation are integrated into a single passenger interaction to arrange complete door-to-door travel. Imagine buying one ticket to get you on a train, to the airport and straight to the hotel – where your luggage will be waiting for you. The aim is to make travel experiences more efficient, safer, greener and less hassle while optimizing journey times and minimizing costs for travelers. We are just now starting to see how this future might develop, with the potential to completely transform travel.

THE CONNECTED EXPERIENCE – WE'RE ALREADY ON OUR WAY

The multimodal experience starts at home or on your smartphone. There are already travel planning apps and websites that show different modes of transportation, times and costs to get passengers from A to B, but even these are done through separate providers and intermodal systems. In the future, services will be able to book your whole itinerary through a single app - with one search and payment.

Smart-ticketing and e-ticketing are essentially already here. From boarding passes on smartphones to contactless card machines on buses, the next step will be to offer one ticket for all forms of travel. While simplifying travel for passengers, these ticketing systems are also useful to transportation operators as information gathered by smart systems can be analyzed to offer better services.

Single token travel is the next development in multimodal travel — using a passenger's biometrics and travel data to create a digital record and provide secure authentication. The technology has the potential to create a seamless journey for passengers by cutting the time taken for security checks, check-in and boarding at airports and stations.

To achieve multimodal travel, transportation systems need to connect physically and operationally. This means having the right infrastructure supported by quality, real-time information systems to connect routes, schedules and fares.

KEEPING PASSENGERS CONNECTED

Communication is an important factor in the passenger journey – keeping passengers connected and informed improves their experience. Smartphones, laptops and tablet devices are ubiquitous for travelers now, as is public Wi-Fi – the same needs to be true for real-time data and communications for transportation operators. In addition, there are applications providing guidance and wayfinding to help find retail outlets, departure gates or even locate their car, but this is not enough. The real value comes from requesting assistance in real-time to enhance the passenger experience.

Collaboration services embedded in applications through a CPaaS (Communications Platform as a Service) model allow transportation authorities to provide real-time communications, such as messaging, voice and video, to provide scheduling updates, travel information, real-time interaction with staff and passengers and emergency notifications. All of this can be delivered via a single app, simplifying and enhancing the traveler experience.

LAYING THE GROUNDWORK WITH OPEN DATA AND APIS

Mass data is gathered every second from traffic management systems, CCTV cameras, vehicle detectors and many more devices, such as IoT. This will increase in the future as transportation gets smarter. But collecting data is just one challenge. The real value comes from sharing data and creating operational processes to create truly connected transportation systems.

Infrastructure based on open data and APIs will be important to push forward future

transportation innovations and mobility solutions. Multimodal transportation involves different operators coming together to provide better travel, but they can't provide this without knowing what's going on around them. London Gatwick Airport has already reaped the rewards of closer collaboration with low-cost airlines, sharing live data to provide real-time updates and instructions for passengers on the airline's mobile app.

SAFEGUARDING THE NETWORK

Despite these benefits, security remains a challenge. The growth in the Internet of Things and the increase in connected devices used by transportation operators in expanding networks will only increase the number of vulnerable points for unauthorized access – unless properly secured on the network. Cyber-attacks and data breaches are a top concern for IT departments and it's will vital operators secure this data or risk losing passenger trust and streamlined travel.

One solution is IoT containment, as part of an overall layered security approach. By containing connected IoT devices into several virtualized environments on a network, businesses can greatly decrease the chances of a broad network breach, as the threat is confined and cannot spread to wider business operations. Using this segmented approach allows IoT devices to be managed and operated only by the authorized personnel, simplifying IoT management.

Another approach focuses on mission-critical communications, which has an important role in passenger security and operational safety. A consistent cybersecurity strategy is key to keep the communication platform safe from cyber-attacks and ensure service continuity, supported by embedded protection in the system and smart best practices rules.

A GLIMPSE INTO THE FUTURE

Multimodal transportation will completely transform the way we travel. The technology is already here, enabled by open APIs to offer a single ticket, payment and itinerary across different modes of transportation. But the groundwork – the network and systems that connect it all together - must be installed now if we are to take full advantage of seamless travel. This means having a secure and reliable network that keeps passengers and operators connected no matter what mode of transportation they're using.

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By Daniel Ciarcia, Lisa Chase

Why Fort Lauderdale-Hollywood International Airport Opted For

Parksmart Certification

Parksmart certification is a valuable asset to enhance airport operations that you can pursue at your facility.

Airports have long understood why smartly-designed buildings and systems that maximize efficiency and minimize environmental impact can boost their bottom line. Several U.S. airports have earned environmentally-focused recognition, such as the U.S. Green Building Council's (USGBC) LEED certification, for their terminal design and construction innovation. Only recently, however, has one been rewarded for its environmentally sustainable parking efforts. As part of the USGBC's holistic approach to sustainability in the built environment, it has embraced transportation and parking infrastructure through its Parksmart Certification program. In May, Broward County's Fort Lauderdale-Hollywood International Airport (FLL), was the first airport to be awarded the Parksmart Certification for excellence and efficiency in its parking design and management. FLL has achieved certification for its largest garage and is well on the path to certifying the two remaining garages.

Corridor leading to vehicle stalls with wave design walls and ocean theme floor tiling. Daniel Ciarcia

FLL's certification process offers critical lessons for airports worldwide about applying the Parksmart concepts to their sites and navigating the certification process. As the consulting Parksmart advisor to the Fort Lauderdale-Hollywood International Airport, my first-hand account working with Dedrie Registe, contracts/grants administrator of airport parking operations and her team can help airports and campuses plan for Parksmart Certification.

WHAT IS PARKSMART?

USGBC Parksmart certification recognizes parking structures that demonstrate advanced environmental sustainability and efficiency in their design, programming and management. It applies to both new and existing buildings and, unlike prescriptive certification systems that focus primarily on the building design and construction, Parksmart also considers facilities' ongoing operational aspects.

The Parksmart Certification Standard includes 248 available points and to obtain "Pioneer" certification for existing structures a project must score at least 90 points. New structures have different scoring requirements for certification and are tiered to recognize three different levels of sustainability (Gold, Silver, and Bronze).

The certification standard considers a wide range of sustainability initiatives. Some of these are commonplace, such as considering whether a facility charges for parking (which reduces demand) and provides pay-on-foot kiosks (which allow for quick exits). Other initiatives are more advanced, such as conducting a life-cycle assessment to determine the environmental impact over the course of a garage's useful life, or employing energy storage

systems such as battery backup, which helps stabilize the electrical grid. The various initiatives enable Parksmart accessibility for a wide range of garages.

WHY PARKSMART?

The Parksmart process at FLL was initiated by Doug Wolfe, FLL's assistant director and CFO and Registe, who were both passionate about sustainability and extending the existing airport-wide priorities into the parking structures. For Registe, securing Parksmart certification was a way to gain recognition for Broward County's ongoing efforts to make FLL a sustainability and efficiency leader and to promote smart parking across the airport industry.

FLL's executive management has for many years embraced resource efficiency and sustainability as a way to minimize operating expenses as well as an environmentally beneficial strategy. Long before starting the Parksmart Certification process, FLL had been noteworthy for its attention to design and place-making, and its environmental efficiency practices. Since Broward County owns the parking structures and contracts with parking operator SP+ for operations and customer management, both SP+ and the airport have consistently prioritized efficiency. Pam Brown, senior vice president for airport business development at SP+, enthusiastically endorsed FLL's Parksmart Certification efforts as "a win-win strategy to increase customer satisfaction, lower operating costs and benefit the environment and local community." The primary takeaway from the FLL and SP+ alignment is that having buy-in from both airport management and the parking operator is a key advantage for airports starting the certification process.

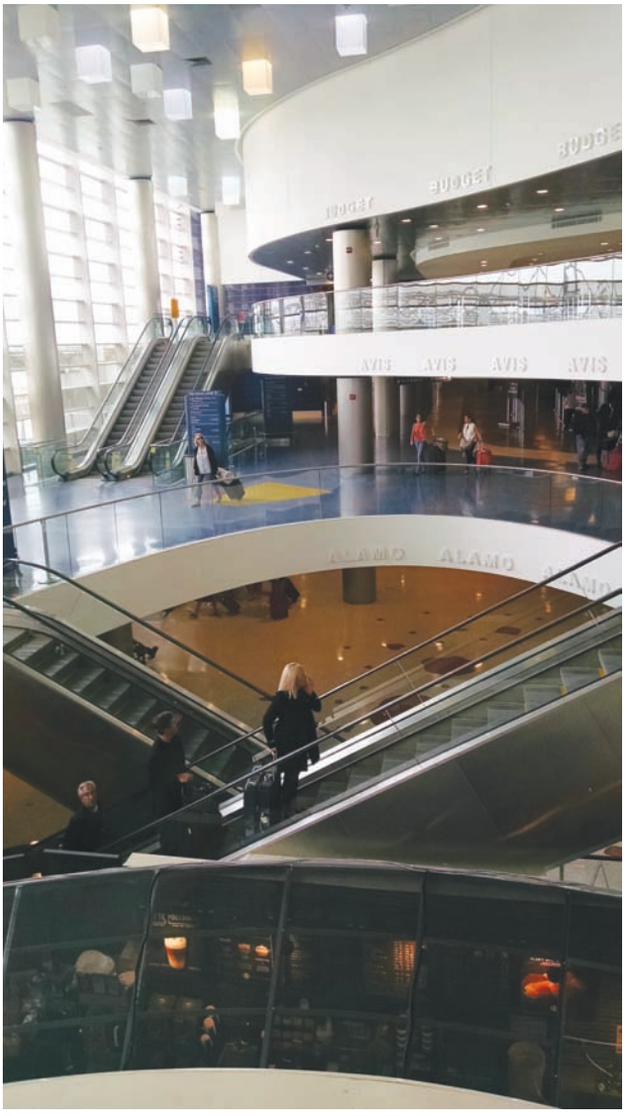
STARTING ON THE PATH TO PARKSMART CERTIFICATION

Registe's role was critical as the focal point facilitating connections with personnel throughout the process. She was instrumental in forming the certification team and enabled the on-site SP+ operations group to fully engage in the process. It was important key stakeholders strongly supported efficiency and the benefits of environmental sustainability (a healthier environment, lower operating costs, enhanced customer satisfaction), because this energized the team to rally around the Parksmart project.

Certification at FLL began with a site meeting between Two Willows Consulting (Parksmart advisor), the stakeholders of Broward County (owner of the airport) and SP+ (the parking operator). We ran through the certification elements, called Measures in Parksmart parlance, and gathered as much preliminary information as possible over the course of a couple of days. Since the three garages, Cypress, Hibiscus and Palm, were independent structures, each needed to be independently evaluated and documented.

ASSESSING SYSTEMIC SUSTAINABILITY AT FLL

We inspected each garage to identify which features could potentially earn Parksmart certification points. Many measures require more technical information than can be obtained through visual inspection, but this early inspection provides a reasonable assessment of each garage in its existing state. The sustainability features that made Cypress Garage a certification candidate span the three sections of the certification management, programming, and technology and design. Placemaking is one of the FLL campus key aspects, including extensive green spaces, picnic areas and tree buffer zones, a decorative blue and white patterned façade on the exterior of Cypress garage, public art displays, aesthetically appealing interior design, an airport observation platform and a pet relief area for furry passengers. Features including a cell phone lot for patrons to wait for arriving passengers without idling at the curb, EV charging stations, in-garage vehicle assistance and a backup power source to avoid using the emergency generator all enhance the client experience while improving efficiency and reducing emissions. Similarly, FLL's traffic management, including single-space wayfinding for patrons to locate parking spaces, entrances and exits, helps patrons and reduces unnecessary vehicle circling and idling. FLL,also incorporated the state of Florida SunPass toll transponder system into the exit system, along with pay-on-foot payment kiosks, to further reduce idling from exiting vehicles. Broward County performed an ASHRAE Building Systems Commissioning on the Cypress Garage when it was originally constructed to ensure all of the building systems were working according to their design and operating at peak efficiency.



Once we had an idea of the point range that each garage could potentially receive, we identified a significant number of additional points FLL could seek with modest financial

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and personnel resources, while providing maximum sustainability benefits. These changes included installing EV charging stations and a tire inflation station, altering some of the operations procedures, installing recycling receptacles throughout the garages and launching a marketing program to educate patrons about sustainability.

In the end, the airport did not need to invest in large capital improvements to obtain certification. One particularly meaningful activity was airport employee Kadiana Mills' interest in obtaining her LEED credential (Leadership in Energy and Environmental Design). This active member of the parking team provides sustainability knowledge and can influence day-to-day decisions based on both environmental and financial considerations.

WHAT IT TAKES TO GET PARKSMART CERTIFIED

The process of preparing for submission involved creating photographic documentation of the garage structures and features, gathering invoices for operational practices, assessing product specifications, writing narratives and pursuing information about the facility. In many cases, this required tracking information from vendors and suppliers outside of the airport personnel.

It was not a difficult process, but for anyone considering Parksmart certification, the best way forward is to designate (or hire) a point person for the role of Parksmart project manager. This project manager is critical to keeping the process moving forward, scheduling regular status meetings, pulling the various documentation pieces together and interfacing with USGBC. Most importantly, it enables parking team members to maintain their focus on their regular job responsibilities with minimal distraction.

WHAT DOES PARKSMART MEAN FOR CUSTOMERS?

Customers at FLL can charge their electric vehicles, enjoy some of the excellent placemaking elements and make a reservation for a parking space using their cell phones before arrival. A traveler on a long layover or who's final destination is Fort Lauderdale can take the free Sun Trolley to the beach or city center. A local resident passing through the garage to retrieve a vehicle can learn about and decide to adopt the energy efficiency strategies highlighted in the educational signage. Drivers arriving at the airport can take advantage of the single-space wayfinding and reservation system, while departing patrons can enjoy a tire inflation and a quick exit thanks to the

Educational signage exists throughout parking campus.
Daniel Ciarcia

SunPass transponder or pre-paid parking ticket. Everyone will be reminded of simple changes they can make to reduce their environmental footprint, such as the value of recycling their beverage bottles or the benefits of inflating their tires to achieve peak operational performance.

FINAL THOUGHTS

The features and practices FLL employs are achievable by most airports and I encourage every airport to evaluate its parking system's sustainability aspects. As the gateway to your city or region, achieving Parksmart Certification for your airport tells patrons and the community that you're committed to creating environmental and social value.

Individually, most of FLL's sustainability initiatives are well-known best practices in the parking industry and wouldn't seem noteworthy on their own. Collectively, however, employing numerous sustainability strategies is a comprehensive and holistic sustainability approach.

Pursuing Parksmart Certification can earn you well-deserved recognition for your site's lighter environmental footprint, bottom line benefits and improved efficiency throughout the parking system.

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By Eliot Lees, Stephen Freibrun, Mark Drusch

Reimagine the Passenger Experience:

The Importance of Airport and Airline Collaboration

Putting a focus on traveler needs creates new revenue opportunities for airports and airlines.

More passengers are moving through global airports than ever before. However, despite new investment and technological advancements, passengers still perceive a deterioration of the travel experience. Customers' expectations have changed dramatically in the past decade and airline passengers are no exception. Companies like Uber, Blue Apron and Netflix have raised the bar for customer experience by providing customers with what they want, when and how they want it. Airports and airlines have struggled to keep pace.

Airports and airlines no longer get credit for delivering on the basics; they need to exceed them through innovative customer-centric solutions. To reap the financial benefits of this cultural shift, airports and airlines must examine today's travel experience through the same customer-centric lens and work collaboratively to design and implement creative solutions.

Much of the issue stems from a divergence between the interests of the passengers and those of the airlines coupled with the pressure to deliver more with less — and for more passengers — has negatively impacted air travel in this regard. Airports and airlines want to generate more revenue, reduce operating costs and increase asset utilization — all while simultaneously strengthening customer loyalty. Passengers want to spend less time in the airport, get to their destination on schedule, and enjoy a comfortable, safe flight.

Customer-centric solutions from airlines and airports must account for these divergent interests. In the case of an airport, a well-designed path from curb to gate translates to more dwell time within the terminal and more opportunities for passengers to enjoy the airport's commercial offerings. Indeed, while divergent interests will continue to exist, airlines and airports investing in a shared customer experience translates directly into dollars for both groups.

Adopting a customer-centric approach requires ideas that speak to the traveler as an individual in order to provide a better overall travel journey and hopefully close these customer experience gaps. Solutions must focus on the critical human needs of the traveler that address mental, physical, and emotional well-being. Airlines and airports need to:

- Provide real-time information to ensure a stress-free experience (mental well-being). From long security queues to inclement weather, traveling can often be an anxiety-ridden experience. Passengers' expectations are set with information from anything ranging to a prior personal experience, a friend's social media post, or even an anonymous online comment. Airports and airlines must understand, assess and react to the various channels that can set negative expectations and increase travel anxiety.
- Build awareness that physical design can contribute to a positive travel experience (physical well-being). With more passengers traveling, both aircraft capacity and terminal capacity are greatly overstretched. Given the vast financial resources required for comprehensive infrastructure renovations, airports and airlines should instead rethink how passengers interact with the existing physical space and

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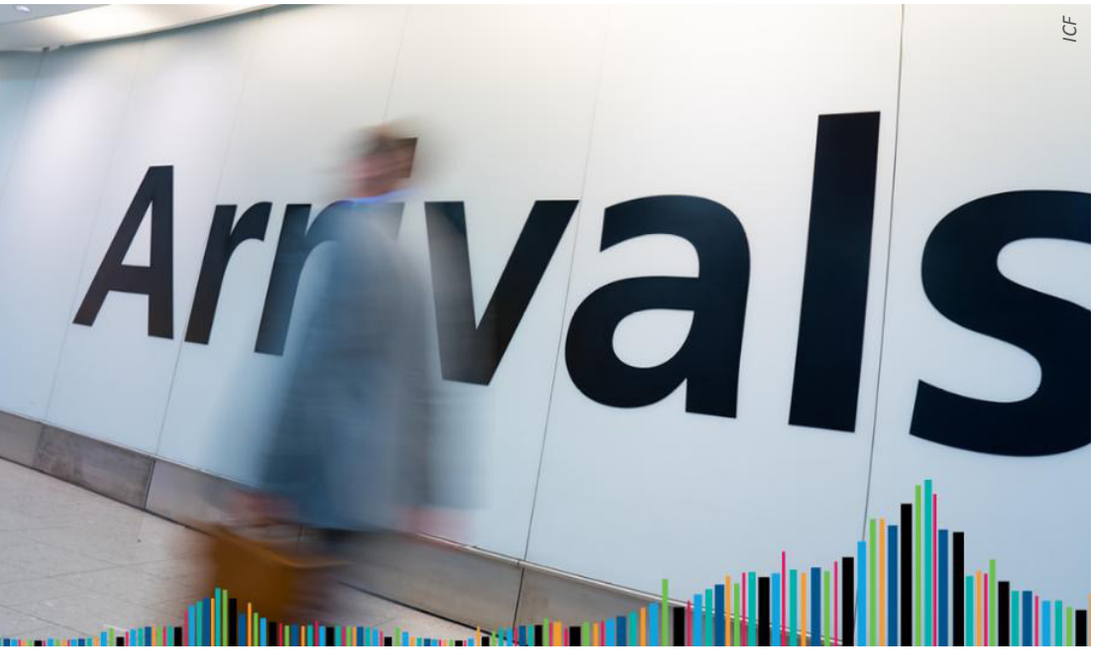

tailor their experiences with amenities and services that make the cramped quarters feel more personal.

- Show empathy toward the stress commonly associated with travel (emotional well-being): Traveling begets a range of emotions: a business traveler trying to navigate a crowded airport for a one-day trip might feel stress and frustration, a vacationer preparing for a family visit might feel happiness and relaxation, or a first-time flier might feel anxiety and excitement. The most successful airports and airlines will be those that can anticipate the diverse needs and desires of their travelers and create positive experiences for each of them.

To address these customer needs, airports and airlines must no longer think about getting people to buy and do what we want, but rather helping people buy and do what they want. Airport innovations that put the passenger at the heart of solution design include:

- Dynamic Queue Management: Airport and air-

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line queues are one of the greatest complaints of passengers. However, airports have yet to address how time of day and time of year affect staffing requirements and, in turn, a passenger's travel experience. Using new technology, proactively measuring performance, changing responsibility for managing queues and working with airlines to ensure staff understand and comply with relevant protocols can have a profound impact on the customer experience.

- Use innovative Mobile Apps. According to SITA, 83 percent of passengers carry smartphones. Airports must be equipped with mobile applications that are usable and useful – providing desired data that the airlines traditionally provide, such as gate changes and flight delays. Using a similar model to popular apps like Pokémon GO, airports could leverage smartphone camera and GPS to overlay additional contextual information onto the airport's physical environment, enabling passengers to select navigation to key locations (e.g., nearest restroom or restaurant) and follow Google Map-like directions. Airports could address language barriers by integrating technology such as Google Translate to relay loudspeaker announcements and transcripts.
- Increase staff presence. Not all solutions must be technological. In fact, process improvements are often easier and less costly to implement and can lead to near-immediate change. Adding airline helpers equipped with the right information, the right attitude and the ability to speak different languages at potential security and check-in bottlenecks helps relieve passenger anxiety, keeps queues and other high traffic areas clear, and leads to a more efficient process.

Ultimately, it doesn't matter whether customers experience frustrations and hiccups at the airport or on the airplane — everything contributes to a negative experience overall. Even though airports and airlines may view their respective roles in the travel chain quite differently, the customer views air travel as one single journey. To combat this, aviation stakeholders from across the travel chain must work together in new and innovative ways. After all, airlines and airports share in the need for customer-centric strategies to make a difference in air travel. Investing in customer experience, if done with appropriate forethought and precision, can unleash new revenues and loyalty opportunities for both airports and airlines, while driving down costs.

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By Joe Petrie

A NEW BRIDGE

Commercial airports across North America have a variety of options when it comes to replacing and standardizing boarding bridges.

When Sarasota Bradenton International Airport (SRQ) opened its new terminal in 1989, they found themselves with new boarding bridges at 13 gates, all owned by the airport with standardized equipment.

But after 28 years of use and abuse from the Florida climate, airport leaders decided it was time to upgrade the bridges and add a very crucial piece of equipment when it comes to life in the south — air conditioning. And with equipment pushing three decades of use, maintenance staff found itself fabricating parts that were no longer available.

"I will brag that we probably have the best maintenance crew in the world and they've done an excellent job of maintaining them, but anything that's 28 years old it's hard to get parts, it's hard to get controllers and that stuff, so it's time to replace them," said Rick Piccolo, president and CEO of SRQ. "And being that old, they're air conditioned internally and they don't have a PC air unit attached to them. We have some stand-alone PC air units out there, but we wanted to integrate everything in the jet bridge as well and get the modern technology."

SRQ was recently awarded $6.3 million grant from the Federal Aviation Administration's (FAA) Airport Improvement Program, which will mostly be used to cover half of the cost of installation of 13 new JBT AeroTech bridges during the next year. Another $5.7 million in costs are split between the airport and the Florida Department of Transportation (FDOT).

"About $1 million of the work is in electrical upgrades for the terminal for the new jet bridges," Piccolo said. "We're adding all the air conditioning and PC air and all that."

Piccolo said they looked at glass boarding bridges, but decided to go with metal bridges with glass windows.

"Metal is a little difficult from the standpoint that we're right near the Gulf of Mexico, so sometimes the salt air eats into it," he said. "On the other hand, it is Florida and it's about a billion degrees when the sun is shining, so having an all glass jet bridge is also an issue to deal with the heat, so we tried to find a happy middle ground."

During replacement, Piccolo said they will close two gates at a time and work around the terminal. SRQ currently as excess capacity so there isn't crowding concerns.

"Our existing bridges were designed in the late 80s and they didn't account for some of the regional jets that we have now," said Kent Bontrager, senior vice president of engineering,

OF SUCCESS

planning and facilities for SRQ. "A lot of our slopes didn't meet the ADA requirements when we got those smaller planes in, so this upgrade will do that now and we'll be completely compliant with ADA.

AS GOOD AS NEW OPTIONS

Mike Olson, AAE, executive director of Central Nebraska Regional Airport (GRI), said 10 years ago, the airport had about 8,000 enplanements with Great Lakes Aviation running three flights per day in 19 seat turboprop planes to Denver. By 2010, Allegiant Airlines entered the market, adding service to Las Vegas and Phoenix-Mesa Gateway Airport (AZA). By 2011, American Eagle added service from GRI to Dallas under the Essential Air Service Program (EAS).

"We went from 8,000 boardings to 47,000 boardings in three years," Olson said. "Then we got American Eagle in June 2011 and we grew from 47,000 to 56,000 and we continued to grow."

Olson said the airport never had a boarding bridge before, but when leaders began plans for a new terminal, they decided it was time to add one. They knew the cost of potentially buying a bridge, but the concept of getting a refurbished unit arose.

A refurbished unit saved $450,000 compared to the cost of purchasing a new bridge.

Dustin Sloan, general manager/vice president of Ameribridge Inc. said consolidation of airlines means a lot of equipment needing to be standardize and brought up to conditions.

One option that's popular for airports is refurbishing old equipment, which Sloan said can provide the benefit of new equipment without the cost of putting in a brand new bridge. "We have retrofit kits that basically allow you to bring an aged piece of equipment to the newest level of technology," he said. "It doesn't matter the original manufacturer."

When looking at potential bridge replacement, Sloan said it's important airports remember the largest and most consistent part of a bridge is the tunnel. You can use it as a building block while replacing all the moving parts, electromechanical equipment and controls.

When refurbishing a bridge, he said it can save an airport 30 percent to 40 percent compared to buying a new bridge.

"When it's all said and done, you're basically zero-timing a bridge to the point that it's very difficult to tell the difference between (a new bridge and refurbished one)," he said.

It typically takes about six months for a bridge replacement project to be completed, Sloan said, but a rehab can take less than half the amount of time.

"You can have a retrofit project done in about two months," he said.

Sloan said a retrofit kit could provide standardization across bridges.

Sloan said you will only have to shut a gate for about a month when doing a full zero-time of the bridge. In some cases the gates can remain operation when components are being replaced.

"It can be taken offsite and it can be done right on building face, he said. "But if you're just going to do a retrofit where someone says 'hey, we just want to get the technology updated and we'll deal with the statics and some of the other things later, that can be done where there's very limited downtime."

Not all bridges can be rehabilitated, depending on the maintenance that has occurred and the structural stability of the equipment.

"We can do structural repairs, but sometimes there are cases where a bridge has been let go for too long," Sloan said. "But I always recommend to the customer they at least have us take a look at it because a lot of times we hear from an airport that 'hey, this thing is in really bad shape, so I doubt you want to mess with it.'

"A lot of that can be skin deep. It can be paint, aesthetics that haven't been maintained, while your real structural core is still in good shape."

By Monica Eaton-Cardone

In an Age of Global Terrorism, Hi-Tech Hackings and Malware Attacks, **How Can the Airline Industry Improve Its Data Security SOP?**

With increased issues with cyber security, take control of your data to keep operations safe.

The nexus between air travel security and global terrorism became painfully clear in the tragic aftermath of September 11, 2001. Immediately afterwards, institutional changes in the pre-boarding process, ticketing, security procedures and the self-identification of passengers were implemented. All kinds of deeply personal, highly sensitive data-points were collected, inventoried, cross-referenced and scrutinized, and our air travel SOP was systematically overhauled. The objective was to protect our citizens from a rapidly-evolving threat-matrix – international terrorism – that represented a clear and present danger to the American homeland. Eight million people fly every single day and on the heels of 9/11, opting for inaction was unfathomable; something had to be done to prevent future attacks. Today, 16 years later, most of us don't even think twice before divulging the most intimate details of our life to airline staff and TSA screeners. From our Social Security number to our children's names to our entire vacation itinerary, we're fully prepared to reveal everything – all in the name of homeland security.

Ironically, the data we're providing to enhance security could be "weaponized" by hackers, criminals, fraudsters and terrorists.

In fact, it's already happening.

Think of all the personal data shared with the airlines. They know our names, home addresses, passport details, travel histories, emergency contacts, health issues and all kinds of private, individualized behavioral information. The collection of this data isn't regulated. There are no industrywide standards for managing and protecting passenger information. Different airlines have different policies; there's no semblance of procedural uniformity. Nor are airlines incentivized to upgrade their data-security protocol. Federal regulators saddled these for-profit, multinational corporations with the extra burden of collecting and processing millions of different pieces of passenger data, but neglected to grant these businesses tax-breaks or supplemental funding to invest in IT improvements. These regulations are, essentially, an unfunded mandate.

Unsurprisingly, the airlines try to contain the regulatory costs by doing what the law requires — and not much more. And really, how can we blame them? It's not their fault. As a for-profit business, they're accountable to shareholders to maximize profitability and that means minimizing unnecessary expenditures.

If it doesn't drive revenue, then it doesn't make economic sense.

This glaring vulnerability must be addressed now. The airlines are demonstrably capable of handling sensitive data and complying with industrywide rules and regulations. They already do with financial data.

The airlines are required to comply with the Payment Card Industry Data Security Standard (PCI DSS) guidelines for all credit card transactions. These are a series of very specific rules safeguarding the financial information of passengers to ensure transactional security. The regulations are explicitly precise and carefully heeded by the airlines. The airlines have a vested financial interest in protecting passengers' credit card information. If passengers no longer trusted the airlines to process their credit cards, it would represent an existential threat to the solvency of their industry. Thus, there's ample oversight, adequate training and the airlines have invested millions in IT infrastructure to keep data safe. Our credit card data is secure and purchasing tickets is considered a low-risk activity. But all the other data airlines collect is exempted from PCI DSS regulations.

Most security precautions for passengers' non-financial information are voluntary. For certain data points there are no security precautions.

In 2004, the federal government mandated PCI DSS compliance for all credit card data because our financial information necessitated special protection. But as valuable as it is, it's no longer our most vital data index. The methodology of cybercriminals has evolved. Hackers are now targeting other forms of personal information, like spending patterns, background info, travel history, family names, places of residency, when we're away, and more, to steal money and commit cyberfraud. Terrorists are also targeting the same information, but for vastly different reasons.

Airlines are responsible for tracking and collecting highly-sensitive data-points. The intent is to protect passengers via aggressive screenings. While these new standards were being adopted, the federal government didn't address what should happen after this data is mined.

If you travel often enough, personal data can be accumulated to create a profile of who you are and what you do. If a terrorist wanted to board a flight under a false name, learning the identities, travel times and data-points of the other passengers could be helpful.

Computer glitches can wreak havoc on air travel. A massive IT failure in 2017 forced British Airways to cancel flights out of London and Southwest, Delta and Lufthansa have recently faced similar breakdowns. The potential damage hackers could inflict has increased.

An airline's IT interface is the point-of-access for customers and cybercriminals. These high-tech hoodlums scour the Internet for security gaps and develop ways to exploit them.

These gaps in cybersecurity are encouraging new IT attacks. Weakness invites fraud attempts. Terrorists, hacktivists and criminals are studying our software, sharing hacking tips on the dark web,and reverse-engineering the internal processes of private businesses to see where they're most susceptible.

The airlines are a tempting target for criminals because there's a treasure trove of personal information and our current security precautions are laughably ineffective. You only need two forms of information to authenticate a flight: a passenger's last name and six-character Passenger Name Record (PNR), which is supposed to work as a secure password. The PNR is printed on every ticket and on every luggage tag. It's literally right there – printed numerically or as a barcode – for anyone to see.

If your phone has a barcode app, you can discreetly take a photo of someone's luggage and instantly learn their PNR number.

All over the world, security gaps in air travel are being detected, tested and exploited. Over a 14-month period at India's Indira Gandhi International Airport in Delhi, 30 passengers were arrested for using forged e-tickets and another passenger was arrested for having a falsified PNR. According to media reports, six of the 19 al-Qaeda terrorists who orchestrated the 9/11 attacks used fraudulent names and fake documents. More recently, the spate of ISIS attacks across Europe were allegedly perpetrated by terrorists who used falsified documents to travel throughout the European Union.

We're making it easy for terrorists to access our private data. Hundreds of thousands of people have taken pictures of their airline tickets and posted them on Facebook, Twitter and Instagram, to brag about their travel plans. In the tail-end of 2016 – over the space of just a few weeks – two researchers found 75,000 different photos on social media of passengers posting images of their tickets. Anyone who viewed the photos could attempted wholescale fraud. Their names and PNR numbers were visible to anyone who clicked on the picture.

In November 2016, eight men in Mumbai were arrested for illegally accessing an international airport. They gained access by using falsified PNR numbers. Fortunately, these men weren't terrorists, but next time we might not be so lucky. PNR numbers are being exploited by bad actors.

An extremist could circumvent a terror watchlist by accessing PNR data and flying under someone else's name. Your everyday criminal might opt to use the data to learn when you'll be traveling so your house can be burglarized. And a stalker could wait until someone's husband or wife is out of town.

The airlines need to affirmatively develop new industrywide standards for securing data and there must be additional funding to implement and oversee these new compliance standards. Eventually, these gaps will be exploited by terrorists. It's not a question of if; it's a question of when. After a terror attack, the cost in blood and treasure will be so great, government bureaucrats will mandate immediate standardization. When this happens, the legislation will be written by congressmen and senators who might not understand the nuances of air travel as well as those who work within the industry. It's always preferable to make these decisions freely and deliberately, instead of having the regulations forced upon you by politicians. Wholesale institutional changes take time; for business reasons and moral reasons, the major airlines must immediately seal these security-gaps on their own. By standardizing the policy, it might even improve internal efficiencies.

It's not the airlines' fault. Terrorism is an international problem effecting all of us. The airlines have been asked to absorb a disproportionate burden of the total cost and that's not fair. But the bottom line is, because the airlines are being specifically targeted by terrorists, the airlines must also be specifically protected.

For far too long, the airlines have been the "canary in the coalmine" for security threats and attacks on airlines have foreshadowed attempts on other industries. Chargebacks911 offers the following five tips to consumers and businesses concerned about data breaches:

Keep all aspects of your customers' data secure, not just their financial information. There is no "unimportant" data. Don't share your customers' data with outside vendors. If a vendor isn't PCI-compliant, avoid doing business with it. Be ultra-vigilant about training your staff how to manage sensitive information. Develop an internal SOP for handling data. "Data is king" has replaced "Cash is king." In many ways, it's your company's single most valuable commodity. Treat it as such.

And remember that sometimes, data isn't just valuable, but a matter of life and death.

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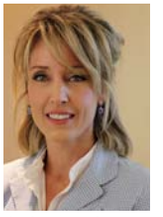


Monica Eaton-Cardone, COO, Chargebacks911

Monica Eaton-Cardone is the owner, cofounder and Chief Operating Officer of Chargebacks911, a cybersecurity company that helps businesses, e-stores and online merchants maximize revenue and minimize loss in a variety of industries and sectors within the payments space. Founded in 2011, Chargebacks911 has grown to over 400 employees worldwide, with offices throughout North America, Europe and Asia. Chargebacks911 manages over 2.4 billion online transactions each year, helping clients in 87 different countries increase sales and decrease fraud.

By Benét Wilson

Airports Work to Bring in More Diverse Businesses

Leveraging partnerships with business groups and local outreach can diversify the business owners who set up shop in your airport.

When the 2020 Census is conducted, it is expected that more than half of the nation's children are expected to be part of a minority race or ethnic group. As the United States becomes a more majority-minority nation, it only makes sense to ensure that reality is reflected in the nation's airports.

Federal, state and some local communities have set up guidelines to ensure that minority and women-owned businesses are represented in airport businesses and contracts. For Memphis International Airport, it's simply the right thing to do, said Scott A. Brockman A.A.E., president and CEO of the Memphis-Shelby County Airport Authority. His airport held a day-long session in the spring for local disadvantaged, minority and women-owned businesses in March to learn about upcoming opportunities and how to get certified.

Airports are a microcosm of the cities they serve, said Brockman. "They are also one of the largest economic engines in a community, and they also operate as small cities with ownership of things like the fire and police departments and road crews," he said. "Because of that, airports have the unique opportunity to be leaders in doing the right thing, because a rising tide floats all boats.

"No one group should be different from any other, and we believe we should ensure that we do things in a way that contributes to their ability to get a seat the table," Brockman stated. "As a leading economic engine in Memphis, we have been labeled as one of the best examples of an airport city or aeropolis, showing what can occur when airports become a focal point of the growth in a city."

It's important for airports to be leaders in inclusion from sub to prime, said Brockman. "The focus here is not just on bringing minority and women-owned businesses to the table, but enable them to become leaders themselves and serve as examples of what can happen when opportunities are truly embraced," he said.

The goal for the Indianapolis Airport Authority (IAA) is to create a level playing field for diverse business owners to do business with the airport, said Holli Harrington, IAA's director of supplier diversity. "In our view, diverse business ownership brings myriad expertise and experiences that help us provide exceptional customer service to more than 8.5 million travelers each year, people who represent a range of ages, economic backgrounds, leisure interests, cultural and ethnic communities and business sectors," she said.

Airports in general are environments rich in opportunities for a range of business types and ownership, said Harrington. "We see the Indianapolis International Airport as a city within a city. It contributes more than $5.4 billion to the local economy, and supports more than 22,500 jobs in Marion County, equating to approximately $2 billion in employee personnel wages and benefits," she said. "More than 10,100 of the total jobs are located on the airport campus alone."

Airports inherently create a captive audience of people, said Paul G. Campbell, Jr., executive director and CEO of South Carolina's Charleston County Aviation Authority (CCAA). "Along with having the disposable income to travel, [they] have two to three hours, sometimes more, of free time as they wait for a flight. While they wait they eat and they shop," he said. "That is why we see more and more airport modernizations that resemble mini shopping malls."

Charleston International Airport serves nearly four million passengers a year and is part of a diverse community with a growing tourism

Charleston County Aviation Authority

From left to right, Sharon McGhee, director of community relations, Charleston County Aviation Authority; Digit Matheny, Morris Financial Concepts; Shawnalea Gavin

Memphis-Shelby County Airport Authority

Edith Kelley-Green's company, KGR Group, runs Memphis airport's Lenny's Subs and Sam Adams restaurants.

and business climate, said Campbell. "We want passengers to immediately know when they step off the plane that they are in Charleston, where there is superior southern hospitality and a rich culture and history to share. We want to do that by providing unique access to businesses with a local and regional flare," he said. "In addition, as a public entity, the Charleston County Aviation Authority, which operates Charleston International, has a responsibility to support businesses that are representative of the community and customers we serve."

A common challenge is finding effective ways to get the word out to minority and women-owned businesses, and Campbell outlined several ways his airport gets the job done. First, the airport recently reorganized and rebranded its website -- iflyCHS.com -- to improve the information that is available and access to it, he said.

"Businesses that contact us are encouraged to sign up online for our business opportunities notification list. When opportunities become available, an email is sent to each registrant with information and instructions on how to participate," said Campbell. "When job opportunities are available at [the airport], we work with our network at the South Carolina Department of Transportation to notify business owners around the state."

The airport publishes its business opportunities in the Charleston Post & Courier as well as the Charleston Chronicle, a major minority-owned/minority-focused newspaper, said Campbell. "In addition, we regularly reach out to airport centric publications and organizations, including ACI-NA, AAAE and the Airport Minority Advisory Council (AMAC)."

In 2015, Charleston International partnered with the other three major airports in South Carolina to host four Disadvantaged Business Enterprise (DBE) Fly Ins, which were opportunities for small-, minority- and women-owned businesses to come together to not only network, but to learn how to do business with South Carolina's airports, said Campbell. "It was the first time the state's airports had come together to create opportunities for these businesses and to help them learn the unique business climate that exists in airport," he said. "More than 300 people and businesses attended the four events at Charleston International Airport, Greenville-Spartanburg International Airport, Columbia Metropolitan Airport and Myrtle Beach International Airport, which comprise the South Carolina Airports Coalition."

The coalition was honored with the Upstate Diversity Leadership Award, presented by the Greenville (SC) Chamber of Commerce and the Riley Institute at Furman University in May 2016, said Campbell. "The program has served as a model for other airports and organizations to emulate," he added.

A MISSION IN DIVERSITY

FOUNDED in 1984, the Airport Minority Advisory Council (AMAC) was created to promote diversity in the airport industry's minority, women and Disadvantaged Business Enterprises (DBEs) programs for procurement and concession contracts. It also promotes diversity in hiring minorities and women at all levels of airport management and operations.

AMAC President and CEO Krystal Brumfield said the organization was started by a group that was a mix of FAA and business people who met annually to discuss the DBE program, how to improve it and help small minority and women-owned businesses.

AMAC has members who have been loyal a long time, said Brumfield. "But now we're trying to find businesses who haven't gotten into aviation yet, including members of organizations like the black or Hispanic Chambers of Commerce," she said. "They're already in business and we want them to consider including aviation as another opportunity."

Like other federal programs, aviation has requirements on spending a percentage of funds on DBE and ADBCE programs, said Brumfield. "There are goals that must be met with those designations. It's a natural fit for a painter that owns a company to use that skill at the airport," she said. "AMAC wants to encourage those who haven't done so to consider the airport as another option and consider it a new customer."

AMAC's mission is twofold, said Brumfield. "One, we want to identify companies that have the ability to do work at airports. Two, we want to help promote diversity in employment, which is just as important as the contracting piece," she said. "When airport leaders think about diversity, it trickles down to everyone else, making it a priority in procurement and employment."

How does AMAC help its members? "We encourage them to get certified to do business at the airport and help them with that process. If there are roadblocks, we can connect them with someone or share best practices," said Brumfield. "They need resources, so we provide them."

A lot of it has to do with networking, said Brumfield. "We connect members with those who have been there and done that. We also point them toward access to capital and bonds as well as resources to gaining industry knowledge and getting educational assistance," she said.

There are airports out there doing a good job promoting diversity and inclusion, said Brumfield, noting efforts at Denver International, Hartsfield-Jackson and Baltimore/Washington. "With concessions, it's all about who you hire to ensure that a workforce is diverse. One who does an excellent job in hiring and promoting is consulting firm Jacobsen/Daniels," she said. "Founders Darryl Daniels and Brad Jacobsen have done a great job building their base."

Read more on making your airport more diverse in the digital version of this story at www.AviationPros.com/12355776

By Daniel Jones

Ultraviolet-C Lighting Cuts Air Handler Maintenance in Airports, Boosts Efficiency and Indoor Air

Considering Ultraviolet-C as part of your airport's HVAC system cuts down the chances of spreading illness by improving air quality.

Nearly 3.5 billion people flew worldwide during 2015, according to the World Bank. That's almost half the global population. A key component of serving those countless passengers is maintaining healthy, comfortable indoor environmental quality (IEQ) in airports.

To achieve this, airport facility management teams around the globe are tasked with maximizing performance efficiencies, while reducing maintenance calls for their air handlers, which can number in the hundreds.

Commercial air handling equipment in airports is designed to condition (cool or heat) a space, as well as provide adequate ventilation rates. Inevitably, though, air handlers become less energy efficient as mold, biofilm and other organic compounds accumulate on cooling coils, restricting airflow and shortening equipment life. Evidence shows that up to a 25 percent drop in capacity can occur within five years or less of startup.

As coil performance degrades, the ability to maintain temperature set points can be compromised, due to a decrease of heat transfer and restricted air flow brought about by increased coil pressure drop. Furthermore, inefficient air handler performance can degrade the quality of air in compact spaces, such as airport terminals, and keep potential disease-causing microbes circulating throughout. In an attempt to clean coils, facility managers often resort to manual pressure washing or chemical treatments—these methods are costly, labor-intensive and, worst of all, temporary. The coils will foul again and require further attention.

A much more efficient and permanent solution to coil fouling and the inefficiencies it brings is Ultraviolet-C (UV-C) technology, which uses light in the UV-C spectrum to degrade organic matter. Ionization drives UV-C's power to alter chemical bonds, causing lasting damage to DNA, ultimately killing or inactivating the microorganism. Over time, the 253.7nm germicidal wavelength also reflects deep into the coils to eliminate the build-up that mechanical and chemical washing often misses.

THE THREE-FOLD IMPACT OF UV-C

UV-C lamps have been used to disinfect upper air streams in hospitals and doctors' offices since as early as the 1940s. During the 1990s, the technology was applied to the cleaning of HVAC/R components and has been developing ever since. It offers the three-fold benefits of improved energy efficiency, higher IEQ and reduced maintenance.

Primarily now installed to destroy microorganisms that accumulate on HVAC/R components, particularly cooling coils, UV-C lamps boost energy efficiency. Retrofitted UV-C lamps can help return A/C units to initial capacity and reduce or eliminate costly coil and plenum cleanings in as little as 90 days, while new system installations maintain "as-built" conditions. The UV-C energy penetrates deep into the coil to eliminate build-up that cannot be reached by either mechanical (pressure washing) or chemical treatment, and the overall improved heat transfer efficiency and reduced coil pressure drop can slash energy use by 10-25 percent on average.

A direct result of an efficiently-running HVAC/R system is improved IEQ, a necessity

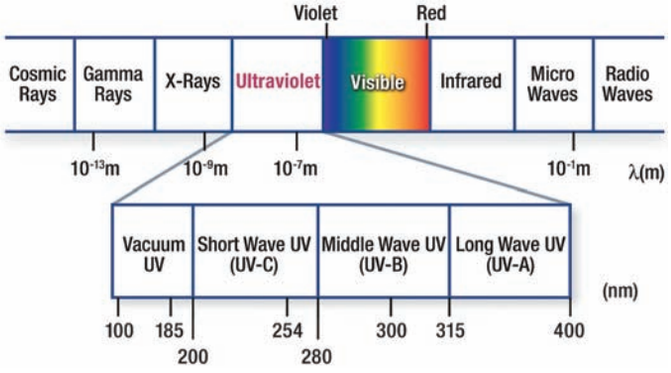
UV Resources

To date, more than 75 of LAX's air handlers have been retrofitted with UV-C to boost energy efficiency and indoor environmental quality.

wherever large groups of people gather, such as in airports. An inefficient HVAC/R system can contribute to poor indoor air through decreased air flow, causing the same bacteria and viruses to circulate throughout a space, increasing the chance of illness. Naturally, the more people there are in a space, the more microorganisms can be generated and proliferate. UV-C has proven to be an effective solution. A 2013 CDC-funded study conducted in two hospitals found that UV-C reduced the total number of colony-forming units of any pathogen in a room by 91 percent. The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), too, has recognized that the UV-C wavelength inactivates virtually all microorganisms living on HVAC/R surfaces with a kill ratio of 90 percent or higher, depending on UV-C intensity and length of exposure.

UV-C can do all of this cost-effectively, with an average installed cost of 15 cents per cubic foot per minute, or CFM (many users report costs that are even less). Using a 10,000 CFM system as the example, the UV-C fixtures would cost $1,500, with an annual operating cost of $188 at $0.10/kW – operating 24/7/365. That is less than one percent of the average 18 percent power savings gained through a more efficient (better heat transfer and lower pressure drop) air conditioning system.

Furthermore, field reports indicate that the initial cost of a UV-C system is roughly the same as one properly performed coil-cleaning procedure, and less when system shutdowns, off-hours work with the associated overtime, and/or contractor labor costs, are considered. Indeed, without UV-C, cleanings are necessary at least once per year to remove capacity-starving pathogen buildup, but cannot reach pathogens deep in the coil and can also worsen the situation by compacting biomaterial in the coil.



The electromagnetic spectrum, with a breakout of visible light segments – colors. The UV spectrum ranges from 100 nm to 400 nm and is invisible.

UV Resources

www.aviationpros.com/12074727

Once installed, the only maintenance that UV systems require is lamp replacement.

Overall, UV-C's ability to boost HVAC/R efficiency, improve IEQ and reduce maintenance time and costs makes it useful anywhere there are air handlers.

CASE IN POINT: LAX RESTORES HVAC PERFORMANCE THROUGH UV-C

With nine terminals totaling several million square feet of floor space, Los Angeles International Airport (LAX) is massive. It's also crowded.

Keeping those travelers comfortable and safe falls to the airport's facility management teams, who routinely look to boost efficiencies and decrease maintenance calls across their immense service area. So when a tenant in Terminal 2 complained of a musty smell in their offices, the teams kicked into action.

"We quickly determined that the odor resulted from the buildup of mold and bacteria on the air handler evaporator coil; a very common condition, especially given our humid, seaside environment," recalls Richard Yakel, the airport's air conditioning supervisor.

Although Yakel's maintenance crews could remove the mold with solvents and elbow grease, he knew that mechanical cleanings and antimicrobial agents were only a temporary solution. Moreover, the organic buildup on the coil had caused a pressure drop that reduced the volume of air passing through the coil, as well as its heat-transfer efficiency.

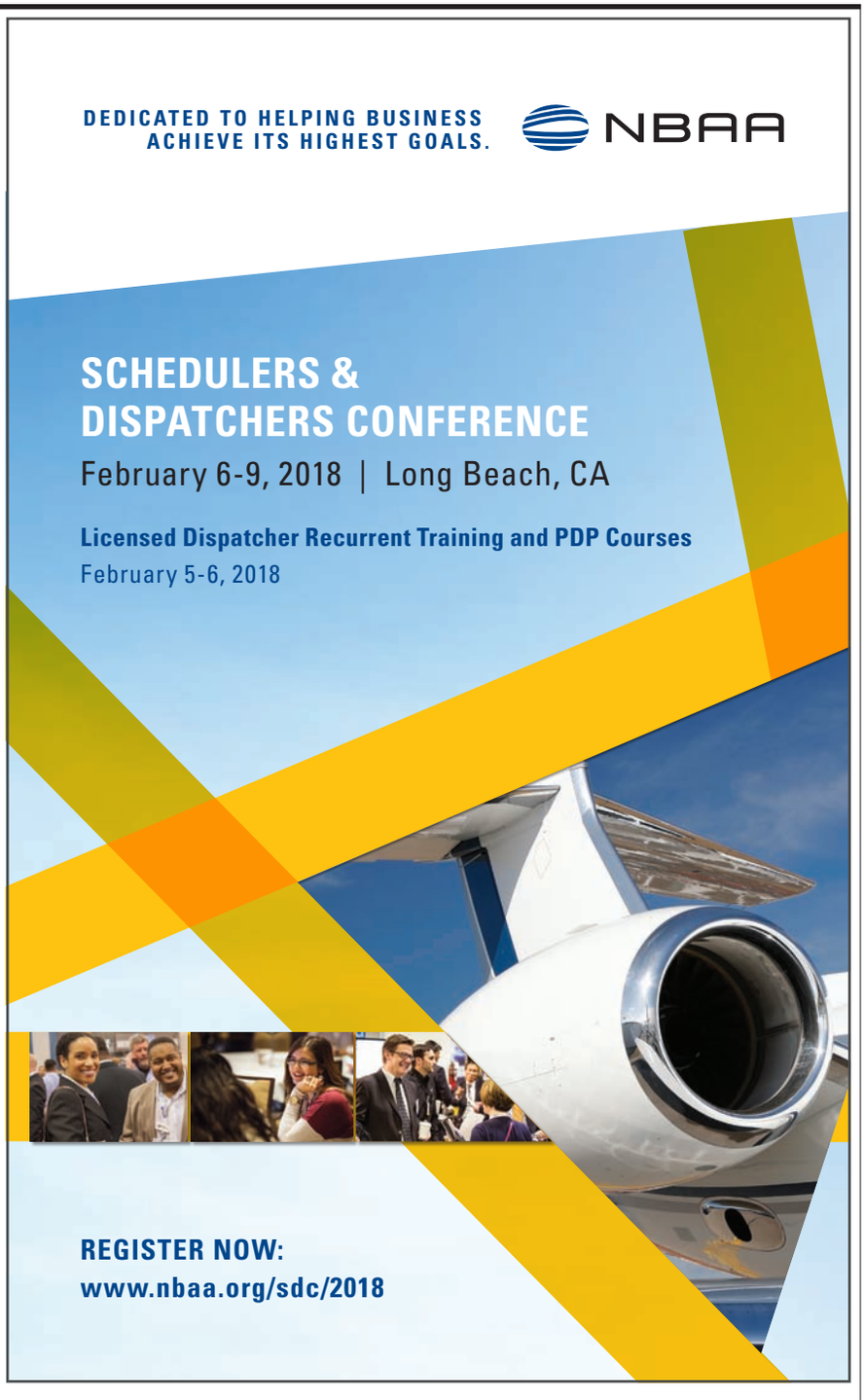
Seeking a more permanent solution, Yakel turned to UV-C. He decided to conduct a test installation on the odorous air handler. His team first measured the unit's static pressure using a differential pressure gauge as well as airflow levels. Following this baseline measurement, the team installed UV-C fixtures in the 14,000 CFM air handler. Pressure readings were taken monthly for the following six months.

"My team and I were surprised by how quickly the UV-C cleaned the HVAC evaporator coil, fan motor housing and blades. However, we were truly stunned to witness a 15 percent (2,000 CFM) increase in airflow levels after just a week of operation," says Yakel.

The experiment's timing proved fortuitous. The airport was in the initial stages of planning a multi-year, $4.11 billion improvement and redevelopment project that would include renovation of existing facilities, as well as a major expansion of the Tom Bradley International Terminal.

With budget funds available for HVAC/R improvements, Yakel made a successful case for equipping all of the airport's 200+ air handlers with UV-C as a way to enhance indoor environmental quality for passengers and employees.

Read more at www.AviationPros.com/12335135



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Daniel Jones

The president and co-founder of UV Resources, a provider of UV solutions and replacement lamps for HVAC systems, Daniel Jones is an ASHRAE Member and a corresponding member of the ASHRAE Technical Committee 2.9 and ASHRAE SPC-185.2, devoted to Ultraviolet Air and Surface Treatment. He may be reached at dan.jones@uvresources.com.

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By Don Berg

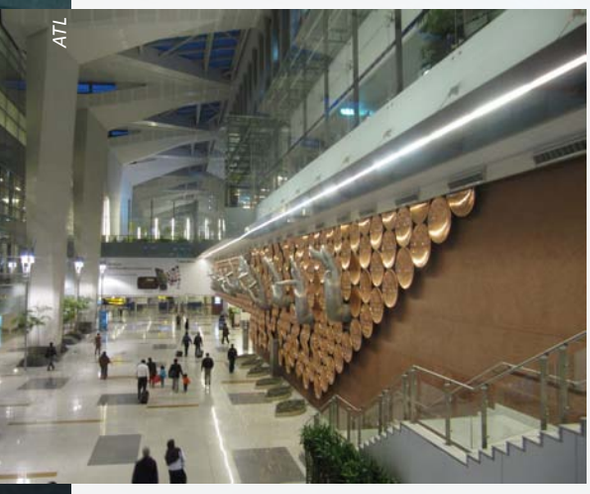
How Retail Technology Can Help Travelers Overcome Stress and Become Open to Shopping

Proper plans for your retail offerings can increase overall revenues for your airports.

Airports have personalities. Whether it's the expressive hand sculptures of Delhi's Indira Gandhi International Airport, the interactive rainforest experience between terminals at Hartsfield Jackson Airport in Atlanta, or the "ambient narratives" shown on the 120-foot array of multiple LED screens at Los Angeles International Airport's International Terminal, centerpiece installations often contribute to these personality traits.

Let's face facts, however. Nobody wants to spend his or her leisure time at an airport. It's a means to an end, not to mention it's typically an experience filled with stress. To enhance the customer experience at an airport usually means making it suck less.

Other public spaces like museums or amusement parks have an easier time of enhancing the customer experience. After all, people usually want to be there. Only when the stress of travel is lessened or eliminated, will travelers be open to experience-enhancing things like shopping.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So, how do we begin to address friction points to get travelers to open their wallet for retail?

The industry has been cognizant of the emotional state of its stress-filled, traveling customers. And those in charge of transporting millions of travelers per day are constantly seeking ways to stem the points of friction that go hand-in-hand with air travel.

There are three primary emotions associated with the stress of travel: anxiety, frustration and fear.

For travelers who have satisfied their basic needs, and lowered their level of stress enough to be more open to positive human experiences, shopping can be a welcome diversion while waiting for a flight. Here are a few best practices from retail technology that can be leveraged in an airport.

1. Endless Aisle: Retail spaces at airports typically consume fewer square feet than, say, malls. In order to take advantage of the limited space, an interactive touch screen experience allows shoppers to have access to the store's entire inventory – without the need to have everything in stock. And offering to ship items home for travelers is often welcomed.

2. Radius Reward Signage: The magic of digital signage is that it can adapt to its environment on the fly. Because traffic volume can vary widely in an airport, outward facing digital signs can do triple duty – depending on how many people are near it. For example, from far away, and with few people in immediate proximity, the sign can act as a billboard, offering a brand impression. With potential shoppers 10-20 feet away, the sign can adjust to become a beacon to draw people into the store. And, in the right circumstances, it can function as a one-on-one search tool for shoppers seeking something specific.

3. Cloud Tags: Often, travelers are in the mood to kill some time in the store, but are not necessarily open to buying anything during their shopping trip. Technologies like CloudTags offers shoppers the ability, without downloading an app, to browse products in the store, and tap their phone to "save" items for later.

Using advancements in customer experience enabled by technology, airports can enjoy increased throughput, higher traveler satisfaction and overall calmer passengers. And calmer passengers spend money.

ABOUTTHEAUTHOR

Don Berg

A principle in the company with a role focused on the development of strategic partnerships and supporting new business initiatives, Don has worked with MaxMedia for 18 years. He has led campaigns for some of the most trusted brands in the world, and is active in the interactive industry and frequently attends events and conferences to stay at the forefront of the latest trends in technology.

By Dickson Kendrick

A New Model for Airline Ticketing

Virtual Ticket Agent technology can hinder stress for travelers when unexpected delays occur in your terminal.

NextBus

Imagine this common scenario. You're taking your luggage out of an Uber, when you get a text that your flight has been canceled due to bad weather. You rush into the airport to reschedule and see hordes of fellow passengers swarming the few agents at the check-in desk. It will be an hour or more until you get to the front of the line, and you doubt any of the day's few remaining flights will be available for rebooking.

If you've traveled recently, you know that extreme weather patterns and other ticketing issues have significantly degraded the airline experience. Despite decades of investment in IT modernization, airline travel plans can easily break down with cascading effects: across airlines, airports, even entire countries. Adding more agents is costly and often isn't feasible due to the many unpredictable, fast-breaking factors that can impact travel. Is there a better, faster, and cheaper way to reschedule passengers and get them on their way?

VIRTUAL AGENT SUPPORT ADDRESSES AIRLINE WEATHER WOES — AND MORE

A new technology, known as a Virtual Ticket Agent (VTA), is built to solve these problems.

Imagine the ease-of-use and self-service capabilities of a ticketing kiosk paired with the expertise and troubleshooting support of a live customer service agent. Passengers can complete routine transactions, such as buying tickets, checking in, selecting seats, and paying for baggage fees autonomously, but click to connect with a remote agent via video link if they have questions or problems. The VTA also senses when there is a problem, triggering agent support. The agent is connected via a video screen that is placed right above the touchscreen to enable eye-to-eye contact with passengers.

VTAS MAKE SENSE IN AN ERA OF ESCALATING CUSTOMER SERVICE DEMANDS

VTAs make business sense in an industry that must balance meeting high customer needs and demands with the opportunities and challenges of running a complex, high-tech transportation and logistics business. While airlines can't solve all problems, they can provide customers with the information and tools they need to optimize their plans and show compassion when things go awry.

Numerous industry studies have demonstrated that providing customers with a "frictionless" experience that reduces their effort and delivering exceptional problem-solving support are key to winning and keeping customers.

BUSINESS BENEFITS OF THE VTA PROGRAM

A VTA helps airlines:

- Increase customer satisfaction and happiness with humane, targeted support
- Support a wide range of customer needs in the language of their choice
- Provide better "line-busting" and use of on-site customer agents
- Meet both expected and unexpected spikes in customer demands
- Escalate exceptional service cost-effectively

THE AIRLINE VTA TECHNOLOGY IS ALREADY HERE — AND READY TO USE

A VTA is completely customizable. Originally developed for train stations, the kiosks have been adapted for the aviation industry. Features can be added such as biometrics, document scanning, and multi-currency support.

WHAT'S NEXT?

For VTAs, the sky is the limit. While information is the key to any customer service interaction, why stop there? The technology is available to create something far bigger than just a help desk. These machines could replace the way people currently board a plane. This solution signals the arrival of the next generation of airport customer service.

With a VTA, the airline customer experience soars – even when planes or travel plans are grounded.

Read more at www.AviationPros.com/12355756

ABOUTTHEAUTHOR

Dickson Kendrick
Dickson Kendrick is NextBus's Airport Business Development Lead with 10-plus years of experience in the airport industry, including seven years with HMSHost. Located in Maryland, he oversees all the business efforts related to aviation customers for Cubic Transportation Systems and NextBus.

By Wayne Arvidson

How Data Storage Can Improve Airport Security

Keeping an airport secure from attacks goes beyond physical improvements as technology needs essential attention globally.

Safe air travel is a vital component of life today. In fact, airports are so important to modern life that they are considered a part of our nation's critical infrastructure. As such, they must be protected and monitored carefully. Every time an airport is the backdrop for violence, such as last year's terrorist attack in Brussels, it underscores the importance of proper security and surveillance systems and processes, and can sometimes expose areas where improvement is needed.

Bill Flind, CEO of Ipsotek, an Advanced Video Analytics vendor commented, "While it is essential to capture as much video data as possible, the challenge is to make that video useful in achieving an improvement in situational awareness. All too often, it is the case that a bad thing has already happened and the video footage is only then being used to assist the authorities in trying to work out what happened and who did it. With the skillful use of advanced analytics technology integrated with the CCTV and data storage systems, the security personnel can be immediately alerted to security breach events in real-time, thereby often providing the opportunity to take preventative actions. It stands to reason that such technology is essential. If an airport has several thousand cameras feeding back to a control room with a video wall of circa 20 screens, it's unlikely that the operators are going spot the critical events as they are happening."

Security systems are in place to protect people and property. In the aftermath of a tragedy, we are compelled to improve our systems by applying lessons learned and through the use of technology. Airports worldwide are doing just that in hopes of heightening security protection at critical ingress points and preventing future attacks.

TIGHTENING AIRPORT SECURITY

Airports offer a confluence of distracted travelers that can be exploited by adversaries, and authorities continue to seek new and better ways to monitor and secure these ports through the use of remote video surveillance and analytics. In some respects, airports are similar to borders. They represent a type of boundary, serving as a key point of entry for international travelers and a foundational part of our society.

Besides being a critical infrastructure component, airports are congregation areas for large, diverse crowds. Travelers from across the country and all parts of the world intersect at international airports, creating a target-rich environment for terrorists and a security challenge for authorities. According to the "Airport Video Surveillance and Security Report 2016," from IHS Technology, airport security officials must protect not only passengers and visitors, but also aircraft, terminals, parking facilities, fuel facilities, airline buildings and power supply facilities.

Video surveillance is an integral part of airport security systems. Cameras are placed throughout airport facilities to monitor crowd activity, perimeter gates and fencing, security checkpoints, baggage handling, hallways, seating areas, entrances and exits. Live streams are monitored continuously with the help of video analytics. Facial recognition technology helps identify known criminals and suspects, while also recognizing employees with authorized access to areas. Virtual trip wire analytics notifies security personnel when boundaries have been crossed and behavioral analytics algorithms help detect

packages which have been left-behind and other unusual behaviors.

Monitoring suspicious activity over time, tracking movements of watch-list suspects and sharing information between agencies are vital in the effort to provide better security at borders and airports. Carrying out those activities is complicated. Success depends on good information from a variety of sources, one of which is video surveillance footage. Authorities use real-time analytics as well as analysis of past footage in their efforts and that makes video storage an important component of today's surveillance systems.

An example of a forensic requirement is explained by Flind, "Ipsotek is deploying face recognition systems into airports where the key data from every face is recorded along with the location and time data, and links to the relevant normal CCTV footage for forensic analysis. We are successfully capturing most faces that enter or pass through the airport, and that data is being constantly gathered and stored. This allows a situation where a relevant stakeholder can say 'we have just become aware of this particular person who is perceived as a threat, and we want to know if they have been in the airport, and when that was, where they went, who with, and what they were doing.'"

In this scenario, the new image of the person is scanned into the system, which then searches through all the faces that have been seen in the airport, finding any matches and then displaying the instances of those matches with the facial shots and the overview video (before and after their face was captured), along with the time stamps and location data. Flind explained, "We are helping solve a real-world problem here. Bad people rarely just turn up somewhere for the first time and commit terrorism, and it has often been the case that security services will subsequently say that they were aware of a particular individual before they acted. So it is incredibly useful to be able to test an environment like an airport to see whether or not that suspect has already visited, and if so, when and where, and who was with them."

THREE FACTORS THAT IMPACT SECURITY VIDEO STORAGE

To heighten security at airports, authorities are installing more cameras. Camera technology is becoming more advanced with higher resolution capability; panoramic viewing; integrated audio, chemical, infrared and thermographic sensors; and onboard analytics. The combination is resulting in a growing volume of streaming video that must be ingested and stored. Where will this video be stored and how much capacity is needed? The answer depends on a variety of factors, but here are three considerations before making a video storage decision.

Retention Time

Retention time can have a dramatic impact on the amount of storage needed. The longer you plan to keep the video footage, the more storage capacity you will need. How long are you required to keep video? How long do you want to keep it?

Due to regulations and litigation, retention time is increasing. In 2016, the state of Georgia passed HB 976 requiring law enforcement to retain video from body-worn and vehicle-mounted devices for a minimum of 180 days. In addition, any video recording related to a criminal investigation or pending litigation must be retained for 30 months.

When determining retention time policies, complying with regulations is one consideration, but it's not the only one. As we have seen in law enforcement and other industry applications, such as retail, video is an asset that increases in value over time. The quality of the information derived from analytics increases as we observe people and patterns over longer periods of time. That requires video to be kept longer than some regulations dictate and should be factored in when making retention policy decisions.

Accessibility

Some storage architectures make it easier than others to search, retrieve and share archived footage. However, there are many options from which to choose: enterprise DVRs, boxed appliance NVRs, PC-based NVRs, enterprise storage platforms, tape, and cloud storage.

Before selecting a solution, you should consider the question of accessibility. Who needs access to your video footage, and how quickly will they need it? Does the video need to be shared with other agencies? The answers will help guide your decision.

Cost

Budgets are a factor in almost every purchasing decision. There is a limited amount of capital available, at least in most cases, and you want to get the most for every dollar you spend.

Storage can account for up to 60 percent of the typical budget for video surveillance system implementations. That's because high-performance disk is more expensive than tape and many choose architectures based on high performance disk. A good design principle is to size disk storage to meet your ingest performance requirements and then build out your long-term retention capacity using tape or cloud. That approach minimizes your storage costs while still delivering the performance you need.

FIND A BALANCE

Video surveillance is a vital tool for law enforcement and airport security officials. Cameras are more powerful and affordable than ever. The expanded use of surveillance along with new video analytics is a powerful combination in the effort to improve security.

However, new technology has an impact on video storage. Making a storage decision means striking a balance between retention time, accessibility, and cost. Not all storage solutions are the same, so it's worth your time to understand how each solution works in order to make the best decision for your situation.

ABOUTTHEAUTHOR

Wayne Arvidson

A seasoned global marketing, product management, and business development executive, Wayne has over 25 years senior management experience in companies ranging from start-ups to Fortune 500 firms and drives Quantum's strategy in the intelligence and security market. He is an expert on best storage practices for video surveillance, and is helping to drive industry transformation by educating the market on the role storage can play as the foundation of a security infrastructure. Wayne has been published in numerous industry publications and is a regular speaker at industry events. He also sits on the SIA Government Affairs Committee Working Group on Body-Worn Video Technology, which is charged with recommending best practices to the US Federal government.

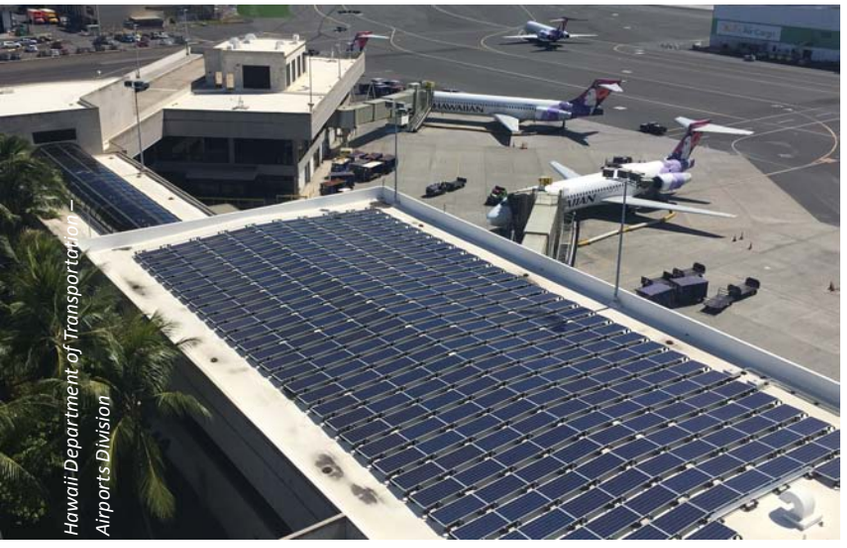
By Michael Trovato

Energy Performance Contract Fuels Efficiency Improvements at Hawaii Airports

Hawaii is taking a holistic approach to sustainability in transportation to reduce its overall impact on the environment.

The first mission of every airport is to provide for the safety, comfort and experience of its passengers, tenants, employees and visitors. Airports also contribute to the local economy and global productivity, making it increasingly more critical that they operate efficiently, reliably and safely.

Integrating business and information technology, airport and building systems can help create smart, safe, productive and efficient airports. An optimized and integrated infrastructure streamlines communications and work flow even as it provides travelers with helpful tools like wayfinding and Wi-Fi connectivity and assists with check-in and gate processing. But just as impactful to passenger comfort, airport operations and the bottom line are solutions that introduce energy efficiency—those that look at lighting and water use, for example, and offer improvements that reduce energy consumption and increase operational efficiencies. Nowhere is this better demonstrated than in airports operated by the state of Hawaii.



Hawaii Department of Transportation — Airports Division

Located approximately 2,500 miles from the nearest populated landmass, the eight main islands of Hawaii that once supported an agriculture-based economy now attract tourists in large numbers.

There were 9,100 solar photovoltaic panels installed at Hawaiian airports to generate renewable energy.

As a result, tourism has replaced agriculture as the leading industry in the state. In addition to tourism, intra-island travel is also growing due to increased business and resident travel, resulting in a 10 percent total increase in airline passengers.

TOURISM INCREASES DEMAND FOR ENERGY

With numbers like these comes an increased demand for energy in a state that relies on fossil fuel for 90 percent of the energy it consumes at almost three times the cost the mainland incurs. In fact, the state imports more than $5 billion of oil every year, with the majority of the fuel tied to transportation, moving goods, people and services throughout the islands. Because a series of islands comprise the state, there is no inter-island grid that can backup whatever utility is on any particular island. Each island must be self-sufficient where energy production is concerned.

To address the unique challenges the islands face, the state's leaders worked with Gov. David Ige to create his Hawaii Sustainability Plan. The plan's ambitious goals include a call for the state to rely 100 percent on renewable energy for its electricity by 2045. Because Hawaii welcomes millions of visitors each year to its airports, it came as no surprise that the plan focused attention on the state's aging airports, along with its harbors and highways. With the help of Johnson Controls Inc., transportation leaders took unprecedented steps to reduce energy consumption on every island.

The Hawaii Department of Transportation (HDOT) has jurisdiction over the state's airports, harbors and highways. Because these entities consume the majority of the fuel the state imports, transportation leaders seized the opportunity to

lead by example as they worked to reduce their energy consumption.

AIRPORTS SUFFER FROM DEFERRED MAINTENANCE

Built in the 1970s, Hawaii's aging airports had suffered the consequences of deferred maintenance. Many of their chillers that produce air conditioning were at the end of their useful life, and the overall appearances of the airports were not much better than the equipment they housed.

To address these and other issues, HDOT established several key goals. At the top of their list, the department sought to reduce energy usage and demand by increasing energy efficiency and building performance.

In addition, HDOT wanted to improve the management and efficiency of utility usage through monitoring and submetering. Reducing facility lifecycle costs, including maintenance, equipment replacement, energy and water utilities, waste disposal, emergency power outages, etc., was also on their list of goals, along with improving the quality of the indoor environment for building occupants. Finally, HDOT planned to implement deferred repair and maintenance projects.

To accomplish all of this, HDOT partnered with Johnson Controls and initiated a ground-breaking set of projects designed to reduce energy consumption and create a more sustainable transportation infrastructure. The project scope included an investment of more than $300 million in energy improvements to airports, harbors and highways, with anticipated energy savings of $776 million.

HAWAII SIGNS LARGEST SINGLE-STATE ENERGY PERFORMANCE CONTRACT

To finance the project, the state entered into an energy performance contract with Johnson Controls in 2012. This alternative to traditional funding has been a successful model for procuring energy efficiency retrofits in the public sector for more than 20 years. The contract uses energy and operational savings over a specified time period to fund infrastructure improvements. The projects are designed so that the annual energy and operational savings are greater than or equal to the required payments over the term of the contract, leaving a net neutral impact on a customer's budget, in this case, the budget of HDOT. Any annual shortfall in savings is paid by Johnson Controls.

The first phase of the contract focused on 12 of Hawaii's 15 airports, which are operated by the Airports Division of HDOT. Johnson Controls helped the department identify and prioritize projects, including more than 900 individual conservation measures, and then set to work, replacing nearly 75,000 lighting fixtures with high-efficiency light-emitting diode (LED) technologies and other energy-efficient lighting. Projects that stretched over two years also included upgrading the heating, ventilation and air-conditioning (HVAC) systems; installing 9,100 solar photovoltaic (PV) panels to generate renewable energy; addressing deferred maintenance; and looking for additional cost savings. This $158 million investment in airport energy improvements is guaranteed to generate savings of more than $500 million over 20 years.

PHASE 2 FUELED BY SUCCESS OF PHASE 1

The success of these projects led to a second phase of energy improvements at these same airports. Unlike Phase 1, which focused on those areas of the airports visible to the public, Phase 2 looks at improvements to behind-the-scenes offices and workspaces. Construction has just started on Phase 2 and will be completed in March 2019. The energy performance contract guarantees an additional $65 million in energy savings through the replacement and retrofit of 47,747 existing fluorescent lamps.

Workers will apply high-end trim to 8,256 LED fixtures and install 15,683 PV panels, including parking lot canopy and ballasted roof systems at Honolulu International Airport capable of producing 5.3 megawatts of power.

AIRPORTS REDUCE ENERGY USE BY 63 MILLION KILOWATT HOURS PER YEAR

Improvements like these are making a significant contribution to energy efficiency in Hawaii and are increasing the state's economic value by reducing energy usage at airports as much as 63 million kilowatt hours per year over the 15-year performance period. In the meantime, the utility costs to operate Hawaii's airports have been cut in half.

Initiatives in Hawaii continue to generate industry accolades. For five years in a row, the Energy Service Coalition named Hawaii "first in the nation" for per-capita investment in energy performance contracting. Meanwhile, Hawaii's airports, harbors and highways are transforming the way energy is used, reflecting an unprecedented commitment to reduce demand for fossil fuels and preserve Hawaii's Pacific paradise for generations to come.

Read more at www.AviationPros.com/12354449

ABOUT THE AUTHOR

Michael Trovato

Michael is responsible for business development of energy management and energy conservation services and is the primary Johnson Controls facing representative for the Hawaii Department of Transportation (HDOT). His expertise in energy and business management provides a unique understanding of the technological and economic trends affecting HDOT, helping to ensure a collaborative partnership and successful series of projects.

www.aviationpros.com/10017532

By Michelle Wendler, John Purinton

Parking the Friendly Skies

See how three airports used parking to humanize the passenger experience.

Embarking on a trip to the skies starts on the ground, often with parking. And in an era where air travel can make us feel like part of a herd, many airports are seizing the opportunity to create more humanized environments by modernizing dining choices, offering more amenities and providing a high quality experience that starts before you even exit your car.

From site location to functional design to cutting edge technology, today's airports are creating parking that focuses on far more than square footage and stall count: it's an extension of the passenger experience.

So how can better parking ease some of the frustrations that come with flying the sometimes not-so-friendly skies? Facilitating a smoother arrival experience that can trim minutes off of what is already a stressful, time-constrained event goes a long way towards creating a happier passenger, but it doesn't stop there. The cities of San Diego, San Jose and Long Beach have integrated customer-first airport parking designed to enrich the human experience.

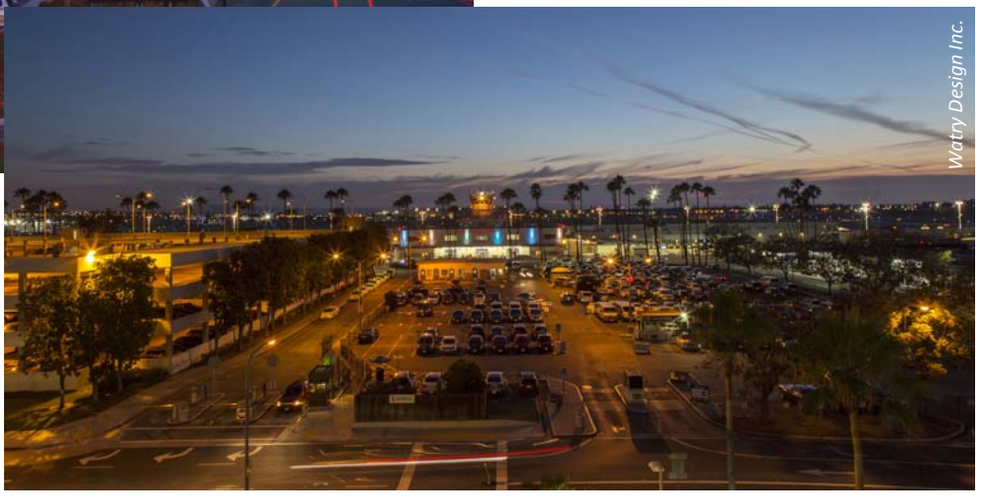
The San Diego International Airport was recently ranked the third best airport in the country. However, rather than resting on its laurels, the airport is seeking more ways to improve the passenger experience. In September, the airport broke ground on the Terminal 2 Parking Plaza, which will provide approximately 2,900 parking stalls while treating travelers to a uniquely "San Diegan" experience. Conveniently located directly across from Terminal 2, the parking plaza will incorporate state of the art technology that includes a camera-based parking guidance system, the ability to reserve spaces in advance either online or with a mobile app and a robust revenue control system to help reduce exiting times. In addition to these time-saving measures, the plaza will boast public art while the top level of the structure will offer stunning views of the harbor

Watry Design Inc.

The San Diego Terminal 2 Parking Plaza will offer visitors a unique, quintessential "San Diegan" experience by providing areas on the top level to enjoy the amazing harbor and downtown views.

Watry Design Inc.

Prominently sited at the San Jose Mineta International Airport's entry point, the Terminal B ConRAC and Parking Structure greets visitors with monumental public art on its east façade that faces a major freeway leading to downtown San Jose.



Watry Design Inc.

View of Long Beach Airport's historic terminal from the parking structure. Designing parking around the passenger experience has created a more relaxed environment.

and downtown San Diego.

Before construction of the ConRAC and Parking Structure, travelers coming and going from the San Jose Mineta International Airport were forced to take a shuttle from the terminal to an off-site rental car facility, particularly inconvenient for business travelers. To create a passenger-first experience at Silicon Valley's airport, the airport chose to relocate public parking and rental car facilities directly in front of the new Terminal B. Relocating the facility reduced average travel time from gate to vehicle by a whopping 20 minutes. The design of the customer service building creates even more convenience by allowing rental car users with premium contracts to bypass the line and go straight to their vehicles. In addition to reducing traffic congestion on airport roadways by more than 25 percent, the ConRAC also created huge operational savings for rental car agencies. To humanize this highly efficient design, the east façade, which faces a major freeway, boasts monumental public art that depicts 65-foot hands based on photographs of Silicon Valley residents waving hello and goodbye.

To reduce stress for passengers, Long Beach Airport wanted to locate convenient parking within walking distance of the terminal. Part of a $140,000,000 modernization effort, the design of their new parking structure emphasizes convenience from reconfigured vehicular circulation that allows drivers to bypass the lower parking levels during peak times to automated vehicular and pedestrian pay stations that can expedite entry and exit. In addition to convenience, the design caters to travelers by sporting spectacular views of the iconic art deco terminal through the stair tower windows. Within months of the structure's opening, Airport Director Mario Rodriguez reported a positive effect on passengers.

"A garage within easy walking distance creates a more relaxed environment," he explained to Rebecca Douglass of AirportImprovement.com. "Passengers arrive to the terminal less stressed, which in turn takes the pressure off our TSA and airline partners. Everybody knows they have plenty of time, so the overall atmosphere is much calmer."

ABOUTTHEAUTHORS

Michelle Wendler

Michelle Wendler, AIA has been creating parking solutions for the firm's clients for over 25 years. She is responsible for the design of over 150 parking projects and leads parking studies and parking structure design for the firm.

John Purinton

John Purinton, SE has been creating parking solutions for over 25 years. He is responsible for the design of over 125 parking projects and leads parking structure design for the firm. Currently the Vice Chair of NPA's Parking Consultant's Council, John was a contributor to the latest edition of The Dimensions of Parking and has both written and spoken on design build delivery and the cost of parking structures.

By Curt Castagna

Make a Business Case to Go Solar

For airport authorities and tenants, the benefits of green energy projects soar beyond economics.

As solar costs drop and incentives increase, major airports across the nation are developing renewable energy projects. The airport environment is uniquely suited for solar projects, with panels being installed on roofs and parking canopies that would otherwise offer no financial benefit.

In addition, the Federal Aviation Administration has identified solar energy as a way to reduce airport operating costs and demonstrate commitment to sustainable development. This trend presents a unique opportunity for airport tenants to participate in solar projects that are designed to either save or generate green energy.

TWO TYPES OF SOLAR PROJECTS

Net energy metering is a billing mechanism that provides credit to solar energy system owners for the full retail value of the excess electricity they add to the grid. Representing the majority of airport solar projects, it bases the size of the system on consumption and encourages customers to use the least amount of energy possible. Situations where on-site generation aligns with on-site consumption are the most cost-effective because they limit the amount of electricity that must be purchased from the grid at the retail rate.

While a net metering program pays a utility customer the retail rate for any generation that is fed back into the grid, feed-in tariff rates (also known as FITs) are set above the retail cost of electricity. Basically, these are payments to energy users for the renewable electricity they generate. An FIT program allows the utility to partner with a participant to purchase, under a standard power purchase contract, energy generated from a renewable energy generating system at a fixed price for a term of up to 20 years.

TENANT AS THIRD-PARTY HOST

While airports may construct solar facilities using tax-exempt financing and government grants, tax incentives to encourage capital

investments are not readily available. However, as third-party host, an airport business may lease out property to a private developer who constructs and operates the solar installation under a long-term lease agreement. This allows the tenant to generate lease revenue, while the developer monetizes tax credits to sell the renewable energy generated to an offsite customer.

For example, Los Angeles' Van Nuys Airport (VNY) recently landed its first solar power project to reduce carbon dioxide emissions and shrink its carbon footprint. Consisting of approximately 4,000 panels spanning some 150,000 square feet, the roof-mount/canopy solar electric system will generate approximately 2.5 million kilowatt hours of electricity (enough to power 200 homes) and reduce carbon dioxide emissions by more than 4 million pounds annually. The system's environmental impact is the equivalent of planting 850 acres of trees and eliminating 6.5 million car miles.

The project resulted from a successful public-private partnership between Aeroplex/Aerolease Group and PCS Energy, the solar provider that leased the roof space and will install the solar panels. Under a power purchase agreement, PCS Energy will supply the Los Angeles Department of Water and Power with 100 percent of the energy produced for the next 20 years. To maximize environmental benefits, PCS will also convert the entire facility to LED lighting, which reduces energy consumption by an additional 35,000 kilowatt hours per year.

The installation of the solar system follows Airport Council International's recent designation of VNY as the first and only general aviation airport to hold a Level 2 Airport Carbon Accreditation for carbon management and reduction, with the ultimate goal of carbon neutrality. It also marks a first step toward achieving VNY's future emission reduction goals, which requires third-party engagement by airport tenants, users and operators.

MAKING THE CASE FOR SOLAR ENERGY

Clearly, there exists tremendous potential for airports across the nation to implement sustainable energy projects. As airports maximize renewable energy opportunities, they are also supporting public policy goals.

For example, the solar project at VNY supports the City of Los Angeles' ambitious vision for cutting greenhouse gas emissions, reducing the impact of climate change and building support for national and global initiatives. In fact, the city has already reduced its greenhouse gas emissions by 20 percent below 1990 levels and is nearly halfway to its goal of 45 percent below by 2025.

It also supports the sustainability mission of Los Angeles World Airports to engage its employees, tenants, customers and communities in an effort to continually improve its environmental, economic and social performance. Thus, in addition to economic goals, airport businesses must also consider environmental and social goals when it comes to measuring return on investment for renewable energy projects.

It is no secret that airports in the U.S. have been slow to engage in public private partnerships due to the regulatory environment. In order to receive federal funds, airport owners are required to use revenue from leasing airport property solely for airport purposes. The "tenant as third-party host" model enables municipalities to rely on the private sector for investments in solar and other sustainable energy projects, and to utilize their capital for vital infrastructure projects. The private entity or investor assumes the risk, while the airport reaps a host of environmental and community benefits. This is a public-private partnership at its best.

For airport businesses striving to serve as responsible members of the community, going solar is also as much a social and political decision as it is an economic decision. While they provide vital services to the public, they must also deal with the by-products of jet fuel consumption. The more the aviation community does to offset the airport's carbon footprint and invest in sustainable energy projects, the more it realizes social and political capital.

In 2016, the National Academies of Sciences, Engineering and Medicine published a report titled "Developing a Business Case for Renewable Energy at Airports" as part of its Airport Cooperative Research Program. Crediting renewable energy projects with providing both financial and public policy benefits, the report explains the importance of aligning green energy projects with an airport's vision and outlines a decision-making matrix that includes engagement with key stakeholders.

Aeroplex/Aerolease Group

The report concludes that it is only possible for organizations (which have traditionally evaluated solar projects based on available funding and cost benefits) to reach an informed decision by evaluating proposals in terms of financial, self-sustainability, environmental and social benefits.

The community benefits of renewable energy include reduction of greenhouse gases, alleviation of environmental impacts from growth plans, achievement of public policy goals related to environmental protection and the building of positive relationships with airport neighbors.

Solar projects at airports across the nation have taken many different forms. In some cases, green energy has been integrated into new construction projects to demonstrate a commitment to sustainable design. At other airports, a private developer has taken advantage of strong incentives to build and market clean energy projects.

While airport solar projects vary, the positive results are the same. Organizations can make the business case for renewable energy by taking into account economic as well as environmental and social benefits.

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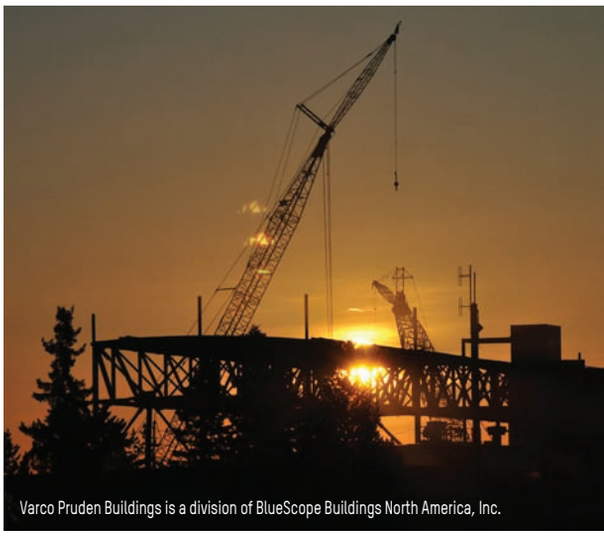

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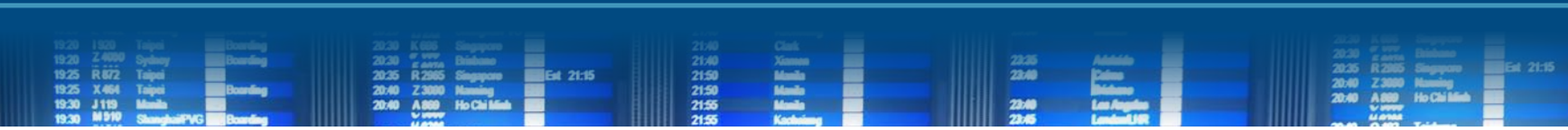

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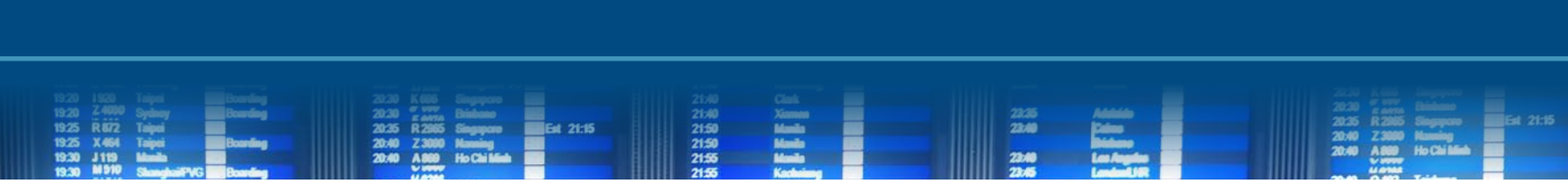

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TOP LEFT: San Diego International Airport Terminal, *California* | RIGHT: Salt Lake City International Airport's End of Runway Deicing Program, *Utah*
BOTTOM LEFT: Wichita Dwight D. Eisenhower National Airport Terminal, *Kansas* | RIGHT: United Terminal at LAX, *California*

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By Tim McGill

Handling the Future:

How Conveyance and Security Will Drive Airport Expansion and Improvement

With baggage technology evolving, airports need to plan for the demands of airlines and passengers today to prepare for tomorrow.

Smart conveyor systems are playing an increasingly pivotal role in the daily operations and projected expansion of the commercial airport baggage and cargo-handling market. This market is projected to grow at a compound annual growth rate of 7.5 percent from 2016 to 2021 due to the increase in air traffic and modernization of airports.

The main source of growth in this market is derived from the construction of new airport terminals and the expansion of existing facilities across the globe. This anticipated growth is directly tied to projections from the International Air Transport Association (IATA) that forecast the total number of airline passengers will reach 3.91 billion this year, an increase of 930 million passengers since 2012.

Airport professionals are looking for ways to optimize material-handling operations in order to keep up with the growth.

TRENDS AND CHALLENGES

With this growth as the major catalyst, industry professionals strive to make conveyor systems more efficient, while also addressing passenger demands for online baggage tracking and the increasing need for worldwide security for carry-on and checked bags as well as other types of scanning (i.e. packages). These needs will require decision-makers to consider more sophisticated technologies in baggage handling and security/tracking.

One of the major disruptive trends is the advent of online tracking that enables a passenger to track a bag from drop-off to pick-up. Delta, American Airlines and Lufthansa currently offer online baggage tracking and more airlines are adopting this feature as passengers request more visibility and real-time data regarding their bags.

As rules change surrounding what passengers can pack in carry-on bags and as airlines increase the costs associated, passengers are demanding increased accuracy and more timely delivery of their bags. Similar to trends in the ecommerce industry, the growing need for higher throughput and accuracy causes a change in the way goods are being handled and in this case, how airports are being built.

Installing smarter conveyor systems with advanced scanning features to reduce slippage helps improve the ability to effectively track checked bags and help resolve passenger worry; this instills confidence that checked bags will be delivered in a timely fashion and without damage.

In conjunction with improving baggage tracking processes, airport modernization efforts are improving the design of its check-in counters. As the first stop in the baggage-handling journey, airports are looking to install advanced conveyor and motor systems in the check-in counters, in order to increase efficiency and incur less maintenance fees, less downtime and operating costs throughout the entire process.

HANDLING SECURITY MATTERS

As rumors of eliminating all laptop carry-ons persist, security continues to be a major issue that

affects how airports treat carry-on luggage and therefore how passengers prepare for travel.

When updating baggage-handling systems, it is necessary to assess security checkpoints to ensure intelligent scanner systems are in place. Many companies involved in baggage handling components and technology are involved in carry-on checking and scanner systems.

Because technology continues to improve in its detection capabilities, including new systems that can better detect types of liquid and gels, it is important to assess new solutions for integration, especially during airport remodel and modernization. Such automated technical solutions may eliminate persistent carry-on fears and ensure travels adhere to the proper safety guidelines. Countries that have legislated a draconian carry-on policy haven't employed the latest scanning technology. This will exert pressure in several directions.

Global scanning manufacturing will likely develop upgrades fairly quickly in order to capture this market. Second, airport facilities in higher security zones will ultimately not want to restrict incoming passengers for laptop and other security concerns and will take major efforts to upgrade to more efficient scanning equipment.

Decision makers and system integrators will need to integrate systems to handle increasing throughput, reduce costs and enable them to negotiate a changing global security landscape.

GLOBAL SOLUTIONS

Today's air travel is not as simple as it was two decades ago, with the increased complexity of multiple security threats for both passenger and freight aircraft, the latter of which is growing at a significant rate and requires as much or more conveyance, scanning and checking than the baggage scenario. This demand drives important considerations for both incoming and outgoing cargo.

Supplier consolidation is one major consideration. As airports are responsible for all incoming baggage/cargo, working with a single supplier enables better, more efficient overall service to manage inventory, spare parts and maintenance, decreasing the likelihood of downtime and undelivered or delayed delivery of baggage or freight.

That, of course, is no substitute for installing and maintaining durable equipment. Interroll, for example, has a curve belt at LAX that's been in service for more than 55 years, without any unplanned downtime, utilizing the company's routine maintenance. With airport space a costly premium at most facilities, repairs in restrictive spaces are often not easy, reaffirming the need for durability and reliability.

Major improvements in belt curve design, one component integrated into complete baggage and freight-handling systems, offer some solutions. First, increasing the speed at which the belt curve operates can improve throughput, a major advantage for airports that need to accommodate more and more travelers, while maintaining high security screening levels.

Second, improving belt curve durability dramatically reduces downtime, enhancing traceability and making increased reliability of baggage delivery more achievable for airline companies and reducing penalties associated with delivery delays. That reliability and durability hinges on making a critical decision in choosing between traditional belt-curve friction drive and positive drive. Positive drive requires significantly less maintenance and reduces failures, increasing durability and uptime.

Some standardization between airlines and airports is paramount. Global consultants have a strong and influential role in decision making, particularly at major airports. It's becoming common practice for major global suppliers to not only supply the equipment but to offer service packages as well, driving what's becoming a more integral, multifaceted transaction. This practice reduces complexities, ensures ongoing maintenance plans are adhered to, reduces downtime, and mitigates overall costs.

Growth will continue to drive how and when airports upgrade or refurbish conveyance systems, for both baggage and cargo. Passenger counts continue to increase and cargo companies are seeing significant growth driven in the e-commerce freight space.

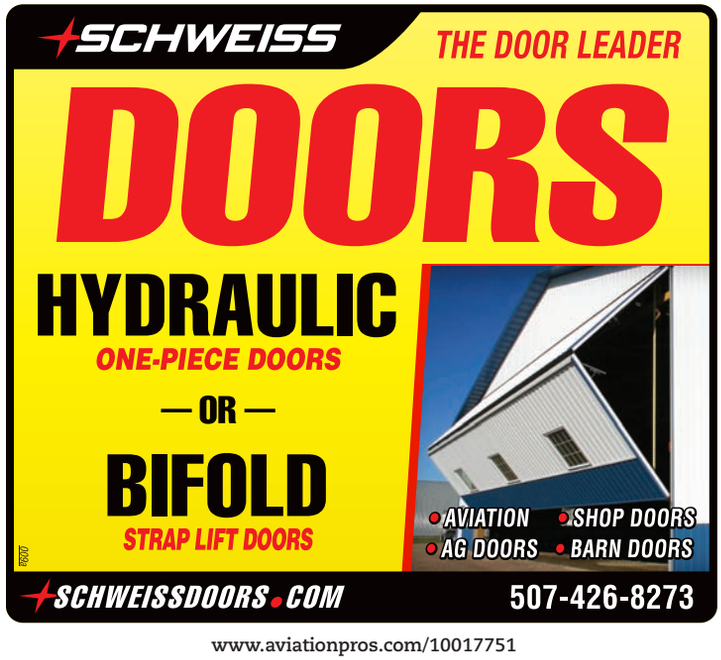
In a tense world, security will also continue to affect upgrade decisions. In the security space, the change toward motorized drive rollers used in intelligence affords lower energy consumption, high levels of safety and offers an easy passenger interface. It checks off a number of important boxes for implementation.

Technology exists and has been deployed at facilities such as Heathrow's Terminal 5 enabling multiple lane scans from a single location. At this terminal, improved 24-volt tray conveyor system allows for higher accuracy tracking and scanning, and also eliminates additional staff who, in a traditional system, would be required to physically handle trolleys full of trays to be reused.

Growth will continue to drive how and when airports upgrade or refurbish conveyance systems, for both baggage and cargo.

Continued system automation will also factor into future operations, as it will eliminate the need for additional staff to tend trays, saving space and improving efficiency required to move tremendous numbers of people through the system.

Key decisions will have to be made going forward depending on the type of baggage that facilities predominantly handle: cost efficiencies, space requirements or restrictions, equipment durability and reliability, service and maintenance, and new security and automation technologies. And how airport facilities deal with baggage as a revenue stream will also play a role. Airlines will likely continue to be aggressive about charging for luggage,



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and that too will determine how baggage is handled and how that's marketed to the passenger.

How quickly a bag makes it to the carousel is becoming part of the airline promise. Some airlines are now offering guarantees about how fast your bag will be on the carousel, which drives the need to assure a high speed of delivery. Furthermore, the trend in many countries to strengthen airline traveler rights will push not only legislation to protect and compensate passengers, but also will drive customer service from a revenue perspective.

On the freight side, security scanning will become an increasingly higher profile issue. One emerging trend is moving from charging for weight to charging for size, which is driven by the fact that today's aircraft can deliver greater lift capacity. Before, handlers would weigh out before bulking out. Now the reverse is employed, creating a trend toward smaller, heavier packages because the planes can lift more. That will apply pressure to throughput, with an increase in demand in general and in the number of packages.

BEYOND AIRPORTS

In addition to baggage handling, an important role in airport logistics is played by global couriers such as UPS, FedEx and DHL. With pressure to move goods across the globe as fast as possible, these global players use air transport as a chief aspect of their business and have large facilities near some of the world's busiest airports. It is important for facilities of major airports to be aware of the trends impacting the baggage-handling industry, as they can benefit from sophisticated conveying technologies that improve throughput, tracking accuracy and save space.

UP UP AND AWAY

Vigilant facility decision makers and integrators are keenly aware of the demands that drive growth and will need to consider important factors for conveyance and security going forward, whether it's a tray-handling system or a conventional belt, friction or positive drive rollers, curve-belt durability, or improved carry-on scanning technology. It's never too early to evaluate, plan and execute how best to accomplish those goals.

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Tim McGill is the Executive Vice President of Americas at Interroll Group. Prior to joining Interroll as a Sales Director in 1990, he worked at Brammer, Europe's leading supplier of quality industrial maintenance, repair and overhaul products in a series of roles with increasing management responsibility. After serving as President of Werner Precision Rollers Canada for one year, he rejoined Interroll in 1996 as President of Interroll Canada. In 2000, McGill was promoted Head of Interroll Dynamic Storage North America and since 2011, has been acting as Executive Vice President Americas and is a member of Interroll Group Management.

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North American Equity Investors, Inc.	1233 Janesville Avenue, Fort Atkinson WI 53538
Tom Schiff	1233 Janesville Avenue, Fort Atkinson WI 53538
Solidus Company, LP	1233 Janesville Avenue, Fort Atkinson WI 53538

12. Tax Status *(For completion by nonprofit organizations authorized to mail at nonprofit rates) . (Check One)*
The purpose, function, and nonprofit status of this organization and the exempt status for federal income tax purposes:
☐ Has Not Changed During Preceding 12 Months
☐ Has Changed During Preceding 12 Months

13. Publication Title	14. Issue Date for Circulation Data Below
Airport Business	Aug/Sep 2017

15. Extent and Nature of Circulation			Average No. Copies Each Issue During Preceding 12 Months	No. Copies of Single Issue Published Nearest to Filing Date
a. Total Number of Copies (net press run)			14747	12719
b. Legitimate Paid and/or Requested Distribution (By Mail and Outside the Mail)	(1)	Outside County Paid/Requested Mail Subscriptions stated on PS Form 3541. (Include direct written request from recipient, telemarketing and internet requests from recipient, paid subscriptions including nominal rate subscriptions, employer requests, advertiser's proof copies, and exchange copies.)	10391	8972
	(2)	In-County Paid/Requested Mail Subscriptions stated on PS Form 3541. (Include direct written request from recipient, telemarketing and internet requests from recipient, paid subscriptions including nominal rate subscriptions, employer requests, advertiser's proof copies, and exchange copies.)	0	0
	(3)	Sales Through Dealers & Carriers, Street Vendors, Counter Sales, and Other Paid or Requested distribution Outside USPS.	422	375
	(4)	Requested Copies Distributed by Other Mail Classes Through the USPS. (e.g. first-Class Mail)	0	0
c. Total Paid and/or Requested Circulation [Sum of 15b(1), (2), (3), (4)]			10813	9347
d. Nonrequested Distribution (By Mail and Outside the Mail)	(1)	Outside County Nonrequested Copies stated on PS form 3541. (Include Sample copies, Requests Over 3 years old, Requests induced by a Premium, Bulk Sales and Requests including Association Requests, Names obtained from Business directories, Lists, and other sources.)	3092	2727
	(2)	In-County Nonrequested Copies stated on PS form 3541. (Include Sample copies, Requests Over 3 years old, Requests induced by a Premium, Bulk Sales and Requests including Association Requests, Names obtained from Business Directories, Lists, and other sources.)	0	0
	(3)	Nonrequested Copies Distributed Through the USPS by Other Classes of Mail.(e.g. First-Class Mail, Nonrequestor Copies mailed in excess of 10% Limit mailed at Standard Mail or Package Services Rates)	0	0
	(4)	Nonrequested Copies Distributed Outside the Mail (Include Pickup Stands, Trade Shows, Showrooms, & other sources)	529	430
e. Total Nonrequested Distribution (Sum of 15d (1), (2), and (3))			3621	3157
f. Total Distribution (Sum of 15c and e)			14434	12504
g. Copies Not Distributed			314	215
h. Total (Sum of 15f and g)			14747	12719
i. Percent Paid and/or Requested Circulation (15c / 15f x 100)			74.9%	74.8%

* If you are claiming electronic copies, go to line 16 on page 3. If you are not claiming electronic copies, skip to line 17 on page 3.

16. Electronic Copy Circulation

a. Requested Electronic and Paid Electronic Copies	3,833	0
b. Total Requested and Paid Print Copies (Line 15C) + Requested/Paid Electronic Copies (Line 16a)	14,646	9,347
c. Total Copy Distribution (Line 15F) + Requested/Paid Electronic Copies (Line 16a)	18,266	12,504
d. Percent Paid and/or Requested Circulation (Both Print & Electronic Copies) (16b divided by 16c x 100)	67.8%	84.0%

☑ **I certify that 50% of all my distributed copies (Electronic & Print) are legitimate requests or paid copies.**

17. Publication of Statement of Ownership for a Requester Publication is required and will be printed in the October 2017 issue of this publication.

18. Signature and Title of Editor, Publisher, Business Manager, or Owner — **Date**
Terri Pettit, Director, Audience Development — September 15, 2017

I certify that all information furnished on this form is true and complete. I understand that anyone who furnishes false or misleading information on this form or who omits material or information requested on the form may be subject to criminal sanctions (including fines and imprisonment) and/or civil sanctions (including civil penalties).

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