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INSIDETHEFENCE

Joe Petrie
Editor-in-Chief



A Change Now, to Change Later

I'm not one for making guarantees.

Before big sporting events, you'll usually have at least one player guaranty of a win and when the game is over he's either hounded by the press for promising something that he couldn't deliver on, or lauded as clairvoyant of unquestionable knowledge about the sport.

Of course neither conclusion is real, but it makes good copy, so in the spirit of making guarantees, I am declaring this to you now — I have no clue what is going to happen in our aviation system the rest of this year.

OK, not exactly a bold prediction, but this year has been anything but predictable when it comes to aviation:

- ATC privatization was viewed as a slam dunk, but here we are in August and the concept is on life support.
- The new presidential administration came out of the gate swinging hard at infrastructure investment, yet here we are at the end of summer with no deal in sight.
- New security measures have changed several times so far (and likely have again since I wrote this).
- The infamous travel ban has been enforced, then halted, then somewhat enforced, then somewhat halted.
- Self-driving car legislation and TNC regulations are still up for debate.

While we've not seen any concrete action one way or another, there are reasons to be cautiously optimistic. At the end of July, we saw federal proposals gain support from lawmakers to remove the cap on the passenger facility charge, allowing airports to take local control of their own vision.

And with a proposal to bolster the Airport Improvement Program (AIP) making its way through the pipeline, there's a sign the message about the importance of our nation's aviation infrastructure is getting through to leaders.

It's more important than ever to keep the pressure on Washington to pass legislation to build better airports and improve the quality and safety of our aviation system. With all the political noise hitting the nation from various realms, it's easy for aviation to be drowned out and forgotten because other areas might be more politically appealing. Keeping these issues front and center with your community leaders and citizens provides a louder voice to your federal leaders and aids the industry associations out there also fighting the good fight.

I have no idea what the status of these bills will be when you read this column, but I do know if we all don't do our part to keep our industry's concerns on the front burner in Washington, nothing is going to change.

I guaranty it.



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► What's Next? Exploring IoT & the Future of Airports

The Internet of Things (IoT) will soon be the new normal for airports around the world. Timely data is critical to running a smart airport, as this information can be continuously pushed out to guide passengers. www.AviationPros.com/1234474

► Female Aviation Professionals Are In Demand

WAI will mark the third annual Girls in Aviation Day to reach aspiring aviators from ages 8 to 17. On Sept. 23, chapters and corporate sponsors will hold events for girls to learn more about aviation at airports. www.AviationPros.com/12344774

Modernizing Terminal Parking and Customer Efficiency at the World's Third-Busiest Airport

Strong planning contributed to upgrading parking facilities at DFW.

In 2011, Dallas Fort Worth International Airport embarked on a massive renovation project called Terminal Renewal and Improvement Program (TRIP) for the interior and exterior renovation of three terminals – A, B and E. McCarthy Building Companies was selected to construct a new 1.6-million-square-foot Enhanced Parking Structure (EPS) at Terminal E in conjunction with improvements being made inside the terminal. The garage - with 3,963 spaces - was designed to bring aesthetic improvements to an aging infrastructure and increase parking availability, all while improving both the overall experience of passengers and operational efficiency of the airlines.

DFW's goals for the design and construction of the EPS project were to:

- Provide passengers with a modern and rewarding travel experience
- Replace two aging, low-clearance, dimly lit garages with one large, well-lit and efficient, modern parking structure
- Utilize the latest parking technology to improve terminal operational efficiency
- Optimize passenger time spent searching for available parking
- Create a safe public space using lighting, technology and a fire protection system easily accessible to DFW emergency personnel.

"The Terminal Renewal and Improvement Program is one of DFW's investments for the future of the airport. These improvements make DFW more competitive and customer friendly in the global marketplace," said Nate Smith, vice president for design, code and construction at



In 14 months, the McCarthy team turned over Phase 1 of the EPS to the airport.

McCarthy Building Companies Inc.

DFW Airport. "The new parking structures are critical components to the future of the airport."

With 65 million passengers a year flowing through DFW and a track record for exemplary customer service, airport executives challenged project planners to maintain seamless terminal operations and passenger flow during construction.

TRAVELING PUBLIC ON ALL FOUR SIDES

About 10,000 people travel through Terminal E daily. The EPS was a two-year, phased construction project with a scope including removal of existing roadways, construction of new bridges and utilities, and demolition of existing garage before new garage construction could begin — all to happen in the middle of this traffic flow.

Due to the limited site access and potential safety issues traffic presented, planners put a

lot of thought, resources and employee training into how to safely move the public around the job site and coordinate more than 350 person workforce getting to and from the site daily. McCarthy implemented traffic control planning, including coordination with multiple contractors and airport departments involved in separate terminal renovation projects to properly prepare for thousands of deliveries, crane lifts and concrete pours while minimizing disturbance to public traffic. Due to the tight site, the company planned for off-site staging and just-in-time delivery of materials. It used tower cranes with the capacity to reach over adjoining roadways and pick materials from the off-site yard and off-load trucks and fly materials into the site. Crews conducted round the clock demolition and haul off of materials but limited work adjacent to and over the top of roadways to a three-hour nightshift window.



Due to the limited site access and the potential safety issues that traffic presented, McCarthy put a lot of thought, resources and employee training into how to safely move the public around the job site as well as coordinate 350-plus person workforce getting to and from the site each day. McCarthy Building Companies Inc.

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PARKING

The activity and equipment in a construction zone tend to pique the public's curiosity. To minimize the distractions that a construction zone can present to drivers and pedestrians, we hung dust barriers around the site to limit the public's view. We also placed barricades on upper and lower terminal roads to serve as delineation for public traffic.

McCarthy worked to minimize the impacts on the driving public including limiting road closures to 60 seconds but only in between 1 a.m. and 5 a.m. The company employed the use of soil nail wall excavations to prevent the constriction of public roadways and subsequent traffic back-ups. No customer wants to be delayed on the way to catch their flight, so this was always at the forefront of construction planning.

Safety on job sites is the top priority for the EPS project, and that extended to the traveling public. There were no incidents with the public at the job site during the two-and-half-year project.

"The Terminal EPS crew went out of their way to ensure public safety as they drove and walked through construction to get into the terminal. Passengers were able to get to their flights with little feedback to the airport and that is highly unusual," said Bobby Rodriguez, assistant vice president Code, Construction and Survey, DFW. "Further, McCarthy had the best safety rates out of the three terminal construction sites."

SCHEDULE CERTAINTY

TRIP construction milestones were set in stone. Completion of each phase of the project had to be concurrent with terminal renovations of corresponding airline gates. This ensured passengers could still park adjacent to their terminal gates. This left the company with a little more than two years to complete the \$100 million project. Per the plan, McCarthy fast tracked the job with a six-day work week with double shifts each day. They also implemented "pull scheduling" to organize subcontractors as well as used week-by-week logistic plans to schedule different kinds of work that coincided with each other.

We experienced 40 days of rain delay in Phase 1. There was not room in the schedule for weather so we got smart – we brought in larger drainage piping, pumped water out of the site, used a special fill that let us get back to work faster after rain and sped up concrete pour cycles.

In 14 months, the team turned over Phase 1 of the EPS to the airport. This section of the garage offered 2,000 parking spaces for passengers traveling through Terminal E. It also provided a 12-month start on parking revenue while Phase 2 of construction continued.

When Phase 1 was open to the public, McCarthy noticed needed improvements on the design which would allow for drivers to more safely enter/exit the garage. The airport agreed with the modification recommendations and added it in Phase 1 and implemented them in Phase 2.

"DFW and McCarthy partnered on design changes early in Phase 2 that would improve the driver experience and are pleased that these changes did not affect the timeline and cost," said Smith.

Thirteen months later, the remaining 1,800 parking spaces of the EPS was complete, coinciding with the completed renovations in Terminal E.

MODERN GARAGE DESIGN FOR CUSTOMER EFFICIENCY

Terminal E now boasts a modern parking structure with a Helix Access Ramp and parking guidance system that optimizes customers' time and airport operations.

The Helix Access Ramp system has proven to be one of the most efficient design features of the EPS, as it relates to minimizing customer travel time.

Comprised of two five-story cast-in-place, post-tensioned concrete ramps that intertwine, the Helix structure is essentially a series of three-dimensional traffic circles, with vehicles yielding to ramp traffic at each level before entering the Helix to access another level of the EPS. This design limits the vertical pathway for vehicles to a much smaller footprint than conventional parking garage ramps.

The use of the Helix system ensures a steady flow of passenger traffic and eliminates 'traffic jams.'

The EPS features a parking guidance system which assists passengers in navigating to available parking spaces. A collaborative network of real-time overhead indicator lights and digital signage directs vehicles to the closest available space.



Read more at www.AviationPros.com/12353949

ABOUT THE AUTHOR

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Mike Uldrich is a project director for McCarthy's Texas division and leads design-build, privately financed projects, specifically providing parking garage solutions to clients within sectors such as Aviation, Municipalities and Higher Education. Uldrich is a 23-year McCarthy "lifer" who studied Architectural Engineering at University of Texas, Austin, focusing on Construction Management.



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It's Time to Talk

Communicating with passengers can go a long way to improving the bottom line in airport retail sales.

Collecting the right passenger data, and using it to communicate effectively and in a timely and appropriate way is key to building better relationships between airports and passengers. Not only can improved communication help to secure longer term loyalty, but it can also increase passenger engagement and drive higher spend.

But when it comes to communication many airports and their passengers are not on the same page or even the same planet and to channel the famous 90s relationship guide, airports could be said to be from Mars, while their passengers are from Venus. Here are some suggestions on how to improve the relationship between airports and the people who matter most to them – their passengers.

The airport is evolving from somewhere that has to be tolerated in order to travel, into a location where people actually want to spend time. In a new study, conducted by ICLP, more than half (53 percent) of passengers said the airport was an enjoyable part of the journey. And yet while passengers are more likely than ever to treat the airport as “the start of their journey,” airports still see themselves as a functional part of getting travelers from A to B, rather than as an active part of the emotionally engaging experiences that passengers seek.

Our research shows that airports tend to overestimate the importance of operational features, failing to appreciate that giving their passengers a memorable experience can make a huge difference when it comes to choosing one airport over another. For example, while 97 percent of airports rated proximity to home or office as an important priority for travelers, only 66 percent of passengers felt the same. Similarly, 83 percent of airports said cost of transport to the airport was a factor, but a

significantly smaller 68 percent of passengers agreed with that sentiment.

However, when we look at the more experiential elements, the picture is reversed. While, nearly half (48 percent) of passengers were interested in a choice of food and drink outlets, none of the airports taking part in the survey put this among their top considerations. The situation is similar when it comes to a good choice of retail outlets. Well over a third of passengers (38 percent) say that this is a top concern, but only 3 percent of airports agree.

Though the importance of non-aeronautical revenue is clear, it's also evident that by not understanding the real needs and motivations of their passengers, many airports could be leaving potential revenue on the table.

This revenue can be substantial, but it shouldn't be taken for granted. Figures released in May from a study commissioned by Tax Free World Association showed that total global duty free and travel retail sales at airports grew to \$36.2 billion – a significant sum. However, this

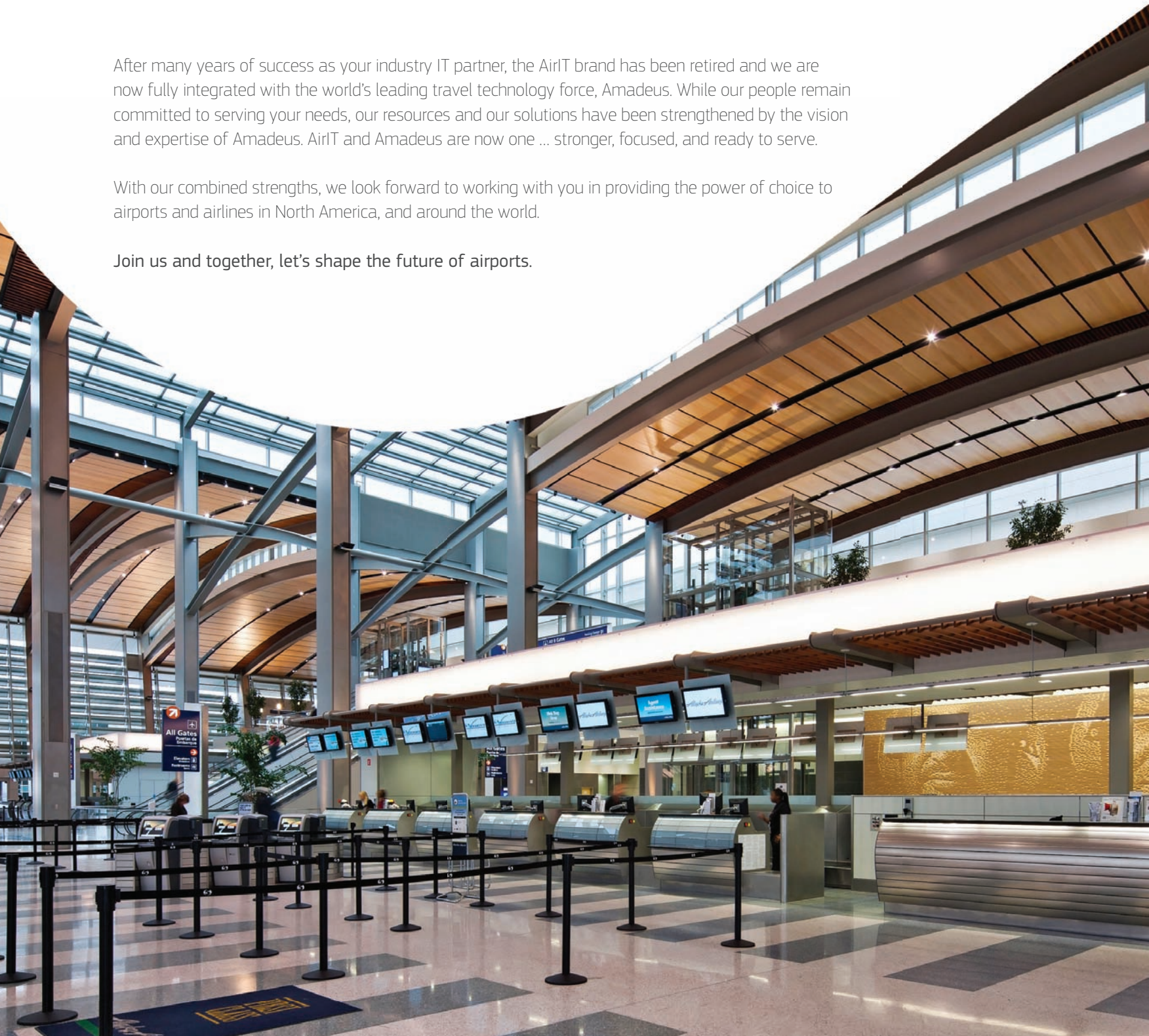


AirIT Becomes Amadeus

After many years of success as your industry IT partner, the AirIT brand has been retired and we are now fully integrated with the world's leading travel technology force, Amadeus. While our people remain committed to serving your needs, our resources and our solutions have been strengthened by the vision and expertise of Amadeus. AirIT and Amadeus are now one ... stronger, focused, and ready to serve.

With our combined strengths, we look forward to working with you in providing the power of choice to airports and airlines in North America, and around the world.

Join us and together, let's shape the future of airports.



is a relatively modest 1.9 percent increase on the previous year's figure. Drilling further down into the data confirms that there is definitely no room for complacency. It was only strong growth of 9.1 percent in the Asia Pacific region, that tipped the global figure into the positive, and in all other regions sales declined. The retail pie, it would appear, is in many cases getting smaller and airports have to work even harder to get a bigger slice. Understanding what customers really want — and then delivering it — is vital if airports are to make the best of this essential revenue stream.

COMMUNICATION IS KEY

One way airports can boost this revenue is by improving the way they communicate with passengers. But again, our research shows that there is something of a mismatch in this area. While 83 percent of passengers say that they would like to receive updates about departure and arrival times, only 58 percent of airports are providing this information. At the same time, 89 percent of airports are sending details and promotions about airport parking, however only 31 percent of passengers are actually interested in receiving this information.

A significant 23 percent of passengers say they never receive any information from the airport at all and of these, 65 percent say they were never given the chance to subscribe to it. Only around four in 10 of passengers say they feel encouraged to engage more with airports by the communications they receive, with just 41 percent saying they receive discounts and offers that encourage them to shop or dine. Only

The retail pie, it would appear, is in many cases getting smaller and airports have to work even harder to get a bigger slice. Understanding what customers really want - and then delivering it – is vital if airports are to make the best of this essential revenue stream.

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38 percent say that the communications they receive encourage them to spend more time at the airport. This is despite the fact that 45 percent of passengers stated that they would spend more if they received offers or discounts in advance of traveling.

TIMING IS EVERYTHING

Of course, any communication needs to be timely but the good news is that passengers are keen to hear from airports at all stages of their journey. Fifty-five percent of passengers stated that they would like to receive information on the day of travel, 47 percent would like to receive information at any time after booking a flight and 25 percent would like to receive information when at the airport. Eleven percent are even happy to receive information when they have passed through security.

GETTING PERSONAL

Like any conversation, it's difficult for communication with a passenger to be relevant unless it's personal. Where airports have invested in passenger communication, there has been a clear direction towards mass communication channels, with 83 percent of airports saying they communicate via social media. This combined with the fact that a significant number (54 percent) of airports said they didn't use individual passenger data to personalize communications suggests that airports do not really know their passengers.

This inevitably makes the personalization of communications harder and yet again, many airports are missing a trick with few making the best of the data at their disposal. All of the airports surveyed give passengers free access to public Wi-Fi but only 48 percent collect data from passengers logging on to that network. Similarly, under a third (32 percent) collect

boarding pass details from retailers when passengers make a purchase. This again is particularly concerning in light of the fact that 86 percent of passengers say they would be willing to share personal information and flight details in exchange for benefits such as discounts.

When airports do collect data, they rarely use it to maximum effect, with just 45 percent of airports saying they use the information they collect in their marketing campaigns and a shocking 23 percent confessing that they don't use it at all.

THE SECRET OF COMMERCIAL SUCCESS

On the high-street, many retailers are taking steps to collect and use data from their customers to improve their communications. In order to be commercially successful, airports need to adopt similar strategies. An airport's non-aeronautical revenue's growth depends on starting a conversation with each and every traveler, collecting the right data from that conversation and using it intelligently to really understand who passengers are and what they want from their time at the airport. Only then can airports begin to unlock longer-term loyalty and maximize engagement and spend.



ABOUT THE AUTHOR

Mignon Buckingham

Mignon Buckingham is Managing Director of ICLP, a global, full service agency specialising in loyalty marketing and customer relationship management. She has responsibility for 600 staff in 16 offices across Europe, Middle East, Africa, USA, South America and Asia Pacific, who create more loyal and profitable relationships for clients.





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Build a Better Traveler Experience From All Angles

Building a better passenger experience means integrating technology and concessions while placing traveler needs when and where they want them.

For leaders at the Houston Airport System, getting millions of travelers through George Bush Intercontinental Airport (IAH) and William P. Hobby Airport (HOU) each year can be a challenge. Travelers have to navigate the facilities and find their ways to the gates, which creates a stressful start to a trip and seeds negative connotations about an airport.

In July, Houston launched a wayfinding system within the airports' websites, so travelers know where they're going as soon as they park their car.



The Houston Airport System implemented wayfinding in its website so travelers don't need to download an app.

Houston Airport System

"We realized that we were really filling a need," said Kathleen Boyd, head of marketing for the Houston Airport System. "We also had done some research on the hierarchy of needs of passengers where three out of the top 10 items had to do with wayfinding."

Many airports and airlines use apps to provide wayfinding, but it can be a challenge to get people to download and use them, Boyd said.

"We've really been on a mission to come up with website or browser-based wayfinding and we were fortunate enough to meet up with LocusLabs, who was working on the same project," she said.

The wayfinding allows travelers to find their gate and search restaurants and concessions. An estimated time to reach the destination is also included as part of the system.

Boyd said the airports will utilize different ways to get travelers to engage in the technology using the JC Decaux digital signage to inform travelers about the technology while upgrading other aspects of terminal wayfinding to keep passengers happy.

BUILD A BETTER EXPERIENCE

Pat Askew, principal and leader of the global aviation practice for HKS, said airports need to take cues from the hospitality industry to deliver a customer-centric model.

"The hospitality industry, especially the higher end you go in the hospitality industry, the more focused they are on the customers," he said. "Since airports are really part of the travel experience it seems to make sense that hospitality really finds its way into airport terminals and doesn't just stay in the hotels or the resorts."

Askew said terminals need to be less institutional and more like a high end hotel. The colors, lighting, natural lighting and building materials can make the terminal feel high end and less like a large bus terminal.

Customer service needs to play just as big of a role in the high end experience, he added, so getting employees on the same mindset from the Transportation Security Administration (TSA) checkpoint, to the shops and restaurants, and the airlines are all important to make sure the travelers have a seamless positive experience with staff.

Technology plays a big part in improving the journey through the facility as well, Askew said. Allowing passengers to access information about their flights and options within the terminal with proper wayfinding creates a positive experience as someone makes their way to the gate.

Creating alerts for passengers at the airports about special deals on food or sales sent to their phones provide more access to information. Sending information to their phones about when and where baggage will arrive can also improve the experience by taking away anxiousness from passengers.

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Askew said airports with more flexibility in lease lines and can allow integration of shops and restaurants with the gate hold areas, creating a much more lounge-like atmosphere.

Ben Zandi, president and CEO of Fraport USA, said by 2020 more than 50 percent of the U.S. population will be millennials, Generation Y and Generation X.

"They prefer transactions to be quick, convenient and with integrity," Zandi said. "And they have a very particular pallet. They know what they want and convenience is very important to them."

Zandi said Fraport works with local restaurants in communities connected to the airport to find ways to draw them into the concessions.

A popup program can be very economically friendly to local operators, from an investment and income perspective, Zandi said.

"As you can see, the trend around the country with food trucks in metropolitan cities has taken off because economically it makes sense for the owner/operator," Zandi said. "We're trying to bring the same concept to the airports."

KEEP TECHNOLOGY IN MIND

Ron Gazzola, senior vice president for commercial display, Samsung Electronics America, said outdoor digital signage and LED technology means airports can use technology in new ways to serve customers.

"The technology, it really allows the designers, the IT team to come together and think very differently about how they can use space, what they can use that space for when traditionally it might have been just pure advertising," he said.

Samsung sees a move from large video walls to LED technology.

"The reason we're seeing this be more relevant is we're at a point that the technology is very advantageous for people wanting to invest and it's also giving the airports a huge opportunity in terms of advertising revenues," he said.

Samsung is working with Hertz to deploy outdoor signage for their gold member customers to create a custom meet and greet.

"Someone going to park their car, outdoor signage is going to create a more convenient way for those customers to get information and access information," he said.

Bryan Meszaros, CEO & founder of OpenEye Global, said wayfinding is key to amenities.

A BETTER TRAVELER EXPERIENCE FOR PETS TOO

WITH more pets and service dogs making their way through airports, the emphasis on a creating a better traveler experience is no longer just for human travelers.

The Ark at John F. Kennedy International Airport (JFK) took steps to enhance its service to traveling pets with the opening of AirHeart Pet Hospital in June, giving animals access to medical care and emergency services.

John B. Payne, president and CEO of Compassion-First Pet Hospitals, which runs the facility, said the developers of the Ark outlined their vision of the facility and the importance of having an animal hospital at the facility.

"There's a number of pets that go on and off planes every day that sometimes are in need and we're happy we're there for them," he said. Travelers coming through the airport with their service dog or pet can contact the animal hospital if they notice an issue and Payne said they will send transportation to pick them up or via Pet Oasis at the terminal.

Besides health checkups, Payne said the hospital can provide health certificates for pets going over seas on-site, which many travelers forget.

"It's a wonderful value and service to the pet-owning public who value their pets as part of their family and they want to provide an experience for those pets that are probably afraid and in this case, we're able to handle them properly and calm them down and be friendly to them versus just another piece of baggage," Payne said. "People want this so the value of this and this terminal I think once people learn about it, it will be very popular."

It helps ensure animal welfare while traveling as well because there are trained professionals on-site rather than people used to handling baggage, Payne said.

"If I were boarding my cat or my dog, certainly I'd want a veterinary hospital steps away rather than a drive away simply because it's an insurance policy," Payne said. "They get sick or get injured, they can be seen immediately and oftentimes time matters when it comes to health concerns."



Travelers coming through JFK with their service dog or pet can contact the animal hospital if they notice an issue. Compassion-First Pet Hospitals

"I think they're realizing that you can't go down a very simple route because you really have to take into consideration who is the traveler," he said.

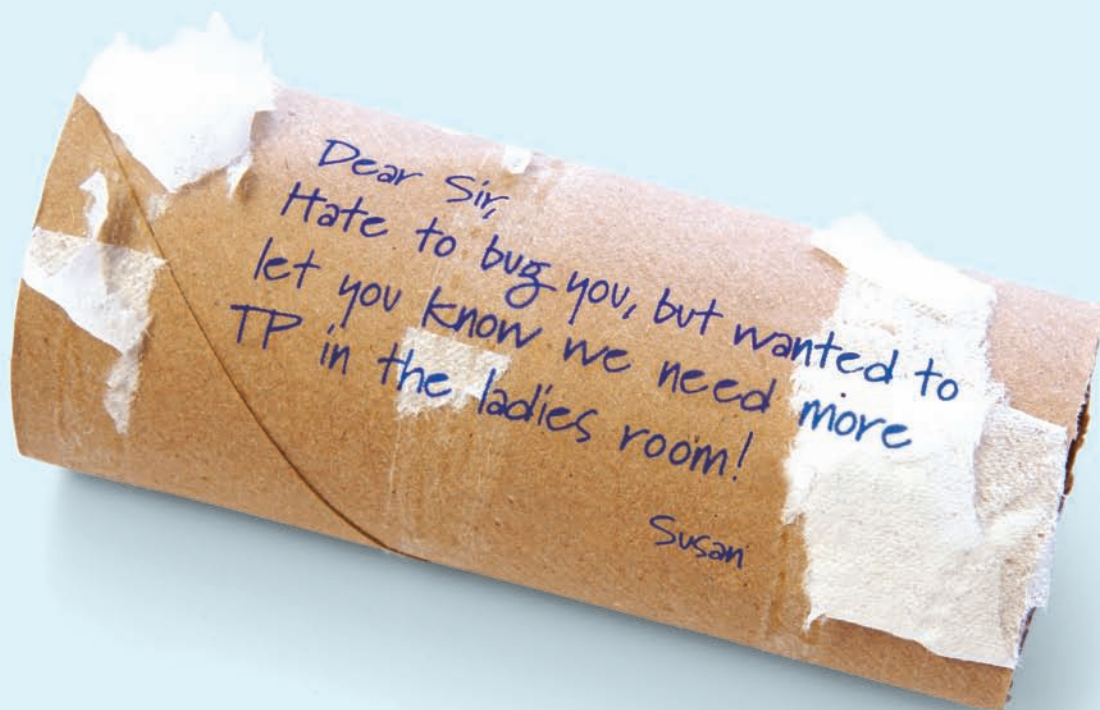
Tomer Mann, senior vice president of global sales and operations for 22Miles, said airports need information to be taken by travelers via a mobile device, such as texting directions, QR code, email, or even a full mobile app.

OpenEye worked with Westfield at Boston

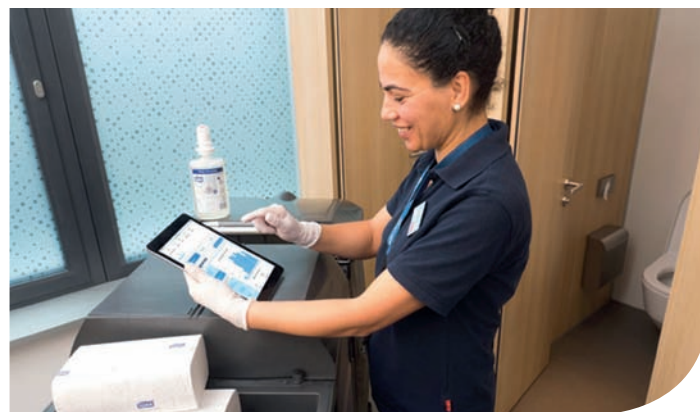
Logan International Airport (BOS) and John F. Kennedy International Airport (JFK) to provide a wayfinding using kiosks and boarding passes.

"In a manner of seconds, they know where they're going and they've already been able to identify places they can go to eat or to enjoy or relax," he said.

Read more: www.AviationPros.com/12345362



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Turning Up the Volume on Airport Priorities

Airports are a fundamental part of our nation's infrastructure. America's airports generate more than \$1.1 trillion in annual activity and support nearly 10 million jobs. But, America's airports have almost \$100 billion in infrastructure projects that must be undertaken to help airports maintain their leadership in the global aviation system.

Over the last few months, ACI-NA and others have turned up the volume on our significant infrastructure needs as Congress considers several key pieces of legislation that could help ensure a modern and competitive airport industry. ACI-NA's mission is to advocate for

policies that strengthen the ability of airports to serve their passengers and communities. We do that important work by bringing our airport members to the table and amplifying their voices so the industry can be heard on Capitol Hill.

As a member driven organization, we know

that the airport industry is its own best advocate. And the industry's unified position is helping to achieve real results.

One thing we have continually heard from policy makers comes back to the industry's ability to articulate its real needs. To assist in that effort, we released our latest airport infrastructure needs study earlier this year, which noted nearly \$20 billion annually in airport infrastructure needs to renovate tired terminals and runways, relieve congestion and delays, improve safety and security, and spur new airline competition that will lower fares for passengers. The policy solution to addressing these infrastructure needs is letting airports of all sizes make their own investment decisions by eliminating the outdated cap on the Passenger Facility Charge (PFC) and maintaining a strong Airport Improvement Program (AIP). Our airport members continue to play a vital role in helping us communicate the sto-



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WASHINGTONWATCH



ries and challenges of airports to key congressional stakeholders on Capitol Hill.

The importance of this work could not be more timely. In the U.S. House of Representatives, Transportation and Infrastructure Committee Chairman Bill Shuster has put forward his FAA reauthorization proposal. Known as the 21st Century Aviation Innovation, Reform, and Reauthorization Act

(21st Century AIRR Act), the proposal focuses mainly on privatizing air traffic control.

Unfortunately, Chairman Shuster's proposal doesn't do anything to solve our airport infrastructure challenges, and that's why ACI-NA has opposed it. Airports have documented infrastructure needs and the future of our aviation system requires modernization in the air and on the ground. The 21st Century AIRR Act

misses a significant opportunity to tackle the real challenge of aging airport infrastructure and advance all airports' ability to serve their passengers and communities.

In the U.S. Senate, Commerce Committee Chairman John Thune has introduced his own FAA reauthorization proposal, the Federal Aviation Administration Reauthorization Act. While this bill includes more airport priorities

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ABOUT THE AUTHOR

Kevin M. Burke

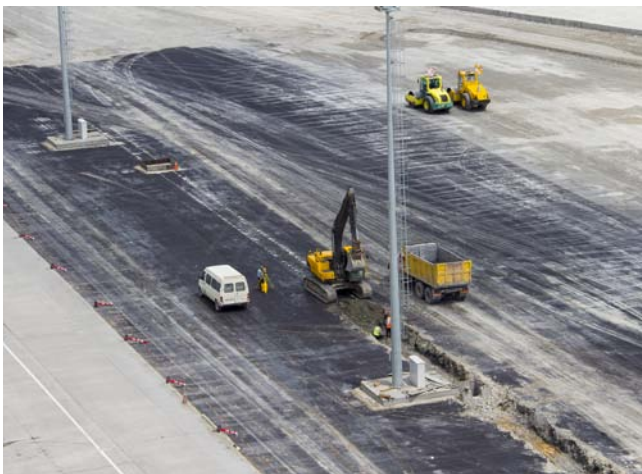
Kevin M. Burke, is President and CEO of Airports Council International – North America.



than its House counterpart, it misses a significant opportunity to provide sustainable, long-term funding options that address the infrastructure needs of airports. We remain committed to working with the Senate leaders to ensure airport funding priorities are part of any long term FAA reauthorization bill.

While these FAA proposals are not likely to move forward in the coming weeks, our fight is far from over. In a major victory for airports, the Senate's Fiscal Year 2018 Transportation, Housing and Urban Development, and Related Agencies (THUD) Appropriations Act would raise the PFC user fee cap to \$8.50 and increase funding for the AIP. This is the first bill that puts real action behind the infrastructure rhetoric by providing sustainable funding streams to help airports of all sizes upgrade their facilities, attract new air service, and improve the passenger experience.

While only time will tell how these bills play out in Congress, ACI-NA remains optimistic. With the leadership of our airport members, we have made tremendous strides in getting Congress as a whole to listen to airports of all sizes as they advocate for sustainable funding to meet critical infrastructure needs. However, we have much more work ahead of us. We encourage you to take a moment to communicate your airport's story to your congressional representatives. Your leadership will help us advance our collective mission to advance airport priorities that are so important to strengthening America's airports.



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Fabric Structures Provide a Useful Option for Airplane Hangars

Fabric structures offer the potential to secure aircraft at a lower cost.

Flying is an expensive sport and business, and making sure aircraft are safe from nasty weather and secure for passengers requires a dependable and affordable structure. When you can't be in the clouds, keep your wings covered and consider the worthwhile investment of a fabric structure.

Fabric structures help dozens of industries protect their materials and operations for an affordable price and minimal construction

demands. These buildings provide versatile, durable and spacious solutions to business challenges and for folks in the aviation industry, fabric

structures can be implemented for any number of purposes, like covering for luggage transportation, holding flight passengers and repairing aircraft. Private aircraft owners who don't fly often may need to store an aircraft for an extended amount of time, but regardless of particular aviation needs, aviators count on innovative engineering in every aspect of their business. When choosing buildings for aircraft and airfields, these structures provide industry-leading innovation.

With materials that can be designed to fit any customized building needs, fabric structures are suitable for any aviation business or private owner and come at a fraction of the cost and time spent on traditional buildings. Fabric buildings come with a clear advantage for the aviation industry.

Because fabric hangars are lighter than traditional materials they don't need to have center posts to support the roof structure.

Clearspan



VERSATILITY

There are many applications for fabric structures in the aviation business. Individual aircraft owners, fixed-base operators, regional airports and international airports can meet aviation industry building needs with a fabric structure. Uses range from luggage inspection shelters, vehicle inspection shelters and passenger holding spaces, to sizeable aircraft hangars or terminals. Fabric structures are adaptable to any environment and can be used across every climate. Furthermore, these structures serve all sizes of aircraft or any airport need, making them versatile structures for an industry with many requirements.

FABRIC COVERS

Because many aircraft are concentrated along the coast where conditions or seasonal changes are unfavorable for proper airplane upkeep, aviation always requires close monitoring of the environment. This makes fabric structures an ideal solution to airplane storage challenges. Protecting aircraft from the elements in most regions will be something important to consider. Their qualities of durability and weather safety provide fabric buildings with a long, low-maintenance life, and owners are able to maintain a constantly controlled environment.

Fabric covers are tested to withstand heavy snow loads and high winds. The fabric material protects the contained aircraft from extreme heat and simultaneously allows natural light into the building, which can drastically reduce the electrical costs of artificial lighting. Because the interior of a fabric structure does not allow in oppressive summer heat, the temperature remains comfortable no matter the climate. The low costs of fabric buildings challenge the high costs of traditional buildings. Not only do traditional building materials cost more, but repairs each season can make the costs of owning buildings extremely high.

These fabric-covered buildings are made of domestic materials and can be customized to meet any need. Choosing a fabric structure for aviation needs provides owners with a much more sustainable option than repairing and rebuilding broken-down hangars.

Aesthetically speaking, fabric buildings have a contemporary and clean look that is impressive from the outside, but the inside is where the magic happens.



SPACIOUS INTERIOR

The frame of these structures is made of triple-galvanized steel and the weight of the building is distributed effectively with a truss-arch design, creating a clearspan interior. There are no support beams in the way of the floor or ceiling space. This means that with a fabric building, there is more cubic feet coverage all around. A spacious overhead and no inconvenient interior support columns allow facilities to effectively store any size aircraft in a clean environment. The wide open interior of a fabric structure ensures maximum useable space for mechanical and maintenance crews. Furthermore, this interior makes it remarkably easier to maneuver any size aircraft without damaging the structure or other equipment. Endwalls and sidewalls are customizable for easy access in and out of the hangar.

STURDY FOUNDATION OPTIONS

Fabric structures come with a variety of foundational options that range from temporary to permanent, but are all strong enough to withstand the weight of an aircraft. The buildings' temporary option makes it simple to expand or move an operation. Fabric structures are easily and quickly erected and their materials are more cost-effective than standard buildings. With various foundation options, some fabric building companies adapt to any desired hangar

locations, which means there is no need to pour a foundation and customers can often times avoid costly permits.

Constructing these structures takes a fraction of the time that traditional buildings take to build. Conventional buildings can take months to construct. In contrast, fabric structures can take only a number of days from start to completion, and this is largely due to the limited foundation requirements.

Some companies offer the option for a Helical Anchoring System. The system utilizes a number of large, metal anchors that drill directly into the ground. When using this foundation, there is absolutely no need for poured concrete. One of the best parts of opting for this system is that it allows the structure to be built in places that it normally wouldn't be able to. It nearly eliminates excavation and allows for the structure to be built much quicker.

All of these characteristics make a fabric structure an easy, spacious and cost-effective choice for any aviation building need. Customers enjoy the ease with which these structures are built and their versatility and strength while in use. The building process is simple from beginning to end.

Read more: www.AviationPros.com/12337890

Contributed by Amanda Williams

How to Tackle Waiting Times in



Waiting times interfere with both the reputation and the revenues of airports. Seeking passenger flow monitoring systems to keep up with increasingly sophisticated customer expectations, airports can choose from a broad range of technologies.

Long waiting times make airports look bad and upset passengers. Even worse, long queues make airports lose money. According to the study “Rise to Challenge – The Risks and Opportunities of Digitization for Airports,” from Roland Berger, a five-minute delay for 25 percent of passengers at the security checkpoint could induce a drop in retail sales of 2 to 3 percent. People that wait more, spend less.

Cutting average security waiting time by one minute may entail higher revenues of \$1.5 to \$2.3 million, as Passenger Flow Terminal reported on a case study of passenger flows conducted at Toronto Pearson International Airport in September 2016. This correlation also applies to smaller and mid-size airports. Federico Cabrera, CCO at Aeropuerto Internacional de Carrasco in Montevideo, Uruguay said, “Shortly after we had installed a 3D stereo vision based system to measure waiting times, we could optimize staff planning and hence reduce waiting times at security checkpoint. This led to a remarkable increase in retail sales of up to \$10,000 in just three hours.”

A RANGE OF TECHNOLOGY OPTIONS

The fundament to tackle waiting times, leverage customer satisfaction and keep up with

the fierce competition is an accurate and reliable system to measure waiting times. In recent years, the array of technologies to address the issue has expanded along with the awareness of the problem. Many different names are used to describe technologies to measure waiting times, such as queue measurement systems, passenger flow analysis and people flow monitoring. Typically, all the available technologies count people in the relevant area (e.g., at security checkpoint or even in check-in/ticketing areas) and measure their dwell times and an algorithm calculates the resulting waiting times. The differences between the various approaches lie in cost,

installation and maintenance efforts, accuracy, reliability and scalability:

- **Wi-Fi/Bluetooth:** Depending on passengers having Wi-Fi/Bluetooth enabled on their smartphones or other devices, these features can be used to estimate waiting times. Usually, sample rates of such systems are rather low, since only a fraction of the enabled devices can be detected.
- **Infrared:** At the start and end of a designated queuing area passengers are counted when crossing a threshold and thereby breaking a beam of light from a sensor. The waiting time is measured based on the number of passengers in between.
- **Thermal cameras:** Thermal cameras measure waiting times based on heat emitted by passengers. Since thermal cameras detect heat in general, measurements are prone to error.
- **Conventional video based systems:** A specific software processes the video output from conventional cameras and calculates the waiting time. Using already existing cameras, installation is simple but can interfere with other video based applications and increase the total lifetime costs considerably due to the required network and computing capacities. As with all technologies based on two-dimensional images (monovision), bright sunlight, shadows, and other external influences negatively affect the accuracy.
- **2D sensors:** Typically mounted on the ceiling, 2D sensors have a built-in camera (monovision). The sensor differs from regular CCTV

cameras by directly processing the image on the sensor itself to count people and measure the dwell time. Thus, network load and required server capacity is significantly reduced. Additional software combines various sensors to cover large areas and to measure the waiting time. As with all monovision technologies, light changes, shadows and other external influences negatively affect the accuracy.

- 3D sensors: Typically mounted on the ceiling, 3D sensors have two inbuilt cameras (stereovision) to calculate a 3D depth image. Software on the sensor performs the image processing directly on the sensor to count people and measure the dwell time. Additional software combines various sensors to cover large areas and to measure the waiting time. 3D sensors are more robust against light changes, shadows etc. than 2D cameras.

HOW TO PICK THE MOST SUITABLE TECHNOLOGY?

So, there is a long list of technologies and suppliers for airports to choose from. How and based on which criteria should an airport keen to measure waiting times and related key performance indicators (KPIs) pick the most suitable solution for the company's aims?

Basically, the level of required sophistication determines the technology. A rather small, only seasonally busy airport may get by with a rather simple technology such as Wi-Fi/Bluetooth, infrared sensors, or thermal cameras. Waiting times measured with Wi-Fi/ Bluetooth technology are more kind of an estimate as opposed to a measurement, since they only detect enabled devices. There are new technologies such as "MAC randomization" that aim at preventing devices from being detected, which further questions this approach.

Large, busy international airports ought to opt for a more high-tech, optical solution. This assumption is in line with some trends that are likely to dominate the airport industry in the next 20 years. The passenger of tomorrow expects an impeccable expectation management via real-time data through all channels. Additionally, the International Air Transport Association (IATA) expects 7.2 billion passengers to travel in 2035. This equals almost a doubling of the 3.8 billion air travelers in 2016.

ACCURACY GAP BETWEEN DIFFERENT OPTICAL SYSTEMS

Optical systems seem to have an edge over other technologies. Only optical solutions enable users to constantly receive real-time data along with live views of the relevant areas. But not every optical technology meets the expectations to the same degree: conventional video camera based approaches arise from the desire to combine existing video cameras with video analytics software and hence avoid investments in new equipment. But they fall short of the required accuracy and reliability, as the image processing in monovision, i.e. one camera, is limited per se. For example, if a passenger stands closely in front of another passenger from the camera's perspective, only one person instead of two are counted and the waiting time is distorted. Furthermore, the image processing occurs on external devices

and requires both considerable network and computing capacity, which increases total lifetime costs significantly. 2D sensors enable direct image processing, but feature the same accuracy/ reliability shortcomings attributed to monovision per se and only satisfy the requirements in well lighted environments. Systems based on 3D sensors deliver the most complete package, when it comes to measuring waiting times



LEADERSHIP IN AVIATION



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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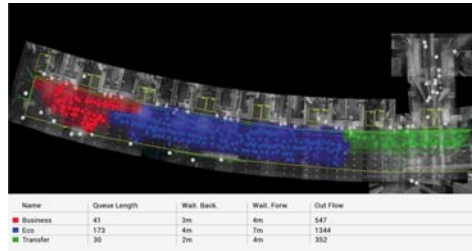
at highly frequented and complex airport sites with demanding passengers.

A 3D SYSTEM IN ACTION

A glimpse at a practical example sheds light on the question why 3D sensors based system achieve the highest level of accuracy, reliability, scalability while keeping the total lifetime cost low. Some combine interconnected 3D sensors and software solutions to measure and predict KPIs such as passenger counts, dwell time, queue length, desk/ lane activity, waiting time, process time and passenger throughput.

When entering the covered area, every passenger is counted, tracked and allocated to a queue according to an "automated queue

A typical 3D sensor with two built-in cameras is typically mounted on the ceiling. Xovis



Xovis technology at VIE security checkpoint: Automated queue detection allocates every passenger to a category and excludes other groups such as visitors and staff (white dots). Xovis

detection" algorithm. Passengers that are not queuing, are excluded from the measurements. Each of the deployed devices combines two image sensors to see three-dimensionally – very similar to the human eye; two "eyes" identify pixels that correspond to the same point in an observed scene to determine the 3D position of this point via triangulation.

3D sensors are independent from signal-emitting devices and highly robust against external influences, such as shadows, light changes and heat emissions. Numerous tests have substantiated the accuracy of the system. Accurately measured waiting times are a powerful tool to optimize airport operation and ultimately increase customer satisfaction. As the media reported in May the third largest airport in the world, Dubai International Airport (DXB), has reduced waiting times by 10 percent during the first three months of 2017.



ABOUT THE AUTHOR

Marc Rauch
Xovis

Marc Rauch leads the recently founded Xovis office in Boston, MA.



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Rise of the Machines

Drones have officially made it into airport operations and are poised to upend how the industry tackles maintenance.

When Jordan Cicoria's company traveled across the world to find business opportunities in 2016, little did he know they would find a partner in making changes to how airports operate a lot closer to home.

In October 2016, Cicoria — who is managing director of Aerium Analytics — said the company was in Japan for an aerospace show as part of an Alberta delegation, when

they struck up a conversation with representatives from Edmonton International Airport (EIA) about unmanned aerial vehicles (UAVs), who were also part of the envoy.

EIA was showcasing the Alberta Aerospace and Technology Centre and Aerium was showcasing its drone technology. As the two entities got to talking, it led the airport to take a drastic

leap forward in its operations and become one of the first airports in North America to embrace the advent of drones.

"Edmonton really embraces new technologies and really wants to be on the forefront of that," Cicoria said. "And they really realize with UAVs and UAS that as they put it, it's a matter of time, it's coming and you can either try to fight it, or more importantly, you can embrace and adopt the technology."

Aerium and Clear Flight Solutions have partnered to implement a full drone program for Edmonton in order to help optimize operations and create new ways of taking care of challenges the airport faces using quad copter and fixed wing drones to gather data on land imaging, volumetric data and surveying data.

One segment of the system is the Robird, which is a robotic bird designed to reduce bird strikes. It is configured to look and fly like a falcon to scare off birds from nesting on the site. Cicoria said it even flaps its wings for propulsion.

Falconry has been used by some airports to keep birds at bay, but Cicoria said the robotic bird is more controllable, allowing you to scare off the real birds and heard them away from dangerous areas in and around the airfield.

"The whole concept here is you're playing on the bird's natural instincts," he said. "With that, their natural instinct is to avoid predators."

The Robird has been tested in Europe in the agriculture industry and at a small airport in Germany, Cicoria said. Edmonton is the first airport to adopt it in North America. The drones are now in operation.

DRONES ARE READY FOR AIRPORTS

Miriam Hinthorn, U.S. operations manager at Consortiq, said a lot of people expected drones to be more prevalent by now in various industries across the nation, but the slow movement, isn't about the technology but due to policies related to drones. The aviation industry is starting to embrace the technology in airports now because revenues can be very fickle and Hinthorn said implementing a UAS for various tasks can provide a significant cost savings. Taking data accrued from UAS sensors and placing them into an IoT platform can provide airports and airlines a chance to implement predictive maintenance plans for assets.

"Normally, you've had to hire an inspector to look at their roof. They can cut that time and you're probably reducing it by 70 percent by using a UAS to do it," she said. "If you scan it 300 times in a year, you can record it and you can start to look at a rate of change on a particular shingle even, so over time, you have to do fewer and fewer inspections because you've got your data figured out and spending way less on maintenance overhead."

Hinthorn said airports are not just looking at drones for maintenance inspection, but various different tasks, including security.

"Paradoxically, you use it to mitigate the risk of hobbyists flying their drones into the area if you have constant surveillance that's really inexpensive to run at a safe distance," she said.

Running drones on the airport require planning depending on usage. Hinthorn said if you're running a UAS in a low-risk area, you need less redundancies and less training, and fly it higher to survey wider areas in a shorter period of time. The FAA has a maximum altitude of 400 feet for using a UAS at U.S. airports.

Using a UAS on higher risk areas, such as runways means airports need to take more precautions and instill more training to make sure the equipment is used safely, which can get complex.

Hinthorn said people with an air control or aviation background can put together a comprehensive plan for UAS usage at an airport because all the considerations and planning can be extremely time intensive by taking

into account all the different risks and weigh them to come up with something that can save the airport money while not being more trouble than it's worth.

"You might be really limited on what you can do and maybe you have to have protocol where it's always tethered and only someone who has like 100 flight hours can operating that drone right now since everything is still with a pilot doing everything move-by-move," Hinthorn said. "There's no fully automated system right now."

There can be challenges with getting federal authorization to implement a UAS at an airport, but Hinthorn said making a case for mitigating risk, preventing fly-away incidents and what kind of training staff will have can make the case for approval. This involves creating a very robust operational handbook.

"If you have a really robust case, then you've clearly pressure tested your ideas, you've pressure tests your operational protocol," she said. "It's not undoable. It's kind of a high startup cost so to speak."

DRONES INVADE ATLANTA

Marshall Eichfeld, mid-Atlantic unmanned aerial systems lead for Michael Baker International, said, Hartsfield-Jackson Atlanta International Airport (ATL) had interest with integrating a UAV with its project inspection workload. The airport flew a drone over a parking garage in

January to inspect it, so the concept of using one on the airfield also was appealing.

A major construction project is coming up on the airfield at ATL and Eichfeld said it created a really good opportunity to work in unmanned aerial photography as part of the project.

"What's really nice about the unmanned aerial is that you can for fairly cheap put this up into the air and gather some photos and videos and also some orthography," he said. "And in theory, you can quantify pavement conditions and you can take progress photos throughout a construction site."



In order to use a drone for the project, Eichfeld said they needed to gain clearance from the Federal Aviation Administration (FAA) to operate the drone in Class B airspace.

The idea to use a drone at ATL was first thought of in the summer of 2016, he said and the airport was very eager to work with the firm on getting the authorization. It took about eight months to get the authorization, then Eichfeld said they were given a list of instructions from FAA on what the approval covered.

In order to fly under the authorization, Eichfeld said it depends on what direction airplanes in flying in to land so they could shut down the runway the drone was being used on. They also want to perform the inspections when ATL is doing its regular shutdown of the runway as part of its inspections.

"Getting that Class Bravo FAA airspace authorization I think was a really big deal and a big step for the industry," he said, "Just getting

the approval from the FAA was a big milestone."

The first drone scan of Runway 9L/27R was completed in March, with about 3,000 linear feet surveyed. The Topcon Falcon 8 drone collected 630 photos of the airfield in less than 20 minutes.

Eichfeld said they plan missions each time the unit is flown. Sometimes they will also take video.

"You can in theory take video frames and do analysis from that," he said.

When a drone goes up, there's a pilot in command and a digital observer, who watch the drone the entire time help the pilot.

Eichfeld said the time it takes to do an inspection via drone can vary depending on what kind of pixel density users are seeking or what data you're looking for. Depending on the aircraft, they will get about 20 to 25 minutes

of battery life on the drone, so on larger sections being documented they have to change batteries during the operation. "The top-down imagery is something that's unique that typically you would have had to spend five figures to bring an aerial surveyor out or a helicopter possibly to shoot these shots," he said. "Now it's something that is relatively cheap and easy for contractors and engineers to go out and quickly look at their sites or do rudimentary calculations."



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Air Travel in the Digital Age

Consumer technology is infiltrating the airport Industry: how to answer emerging customer needs with associated infrastructure and IT services.

Today, travelers have both the technological competence and the desire to use digital services, especially when traveling by air. Travelers want to easily find their gate with indoor navigation apps, mobile order food and beverages while they wait for their flight and quickly connect to high-speed Wi-Fi in traveler lounges and throughout the terminal, all while wirelessly recharging their devices.

From the airline operator's perspective, these digital services have a dual benefit. For one, they're good for business. They enhance the passenger experience and attract more passengers to their hub. They also make airport operation more efficient and cost effective, which improves airport profitability.

New technologies and functionalities are required of your infrastructure to enable these emerging value-added digital services for airport

customers. However, introducing these capabilities into existing IT infrastructure and cable networks can be difficult. There are legacy system constraints to deal with and it's a substantial financial investment to build and manage the infrastructure of a new, more advanced system.

By making the investment, customers will gain the superior service they have come to expect in today's digital world and will soon demand value-added services from airports that

don't supply it. Airport operators will gain the ability to manage entire IT infrastructure and cable networks from a single centralized source and optimize all airport operations. The right infrastructure helps operators solve the airport's most pressing problems, including how to:

- Quickly deliver emerging technologies in a cost-efficient manner
- Document and manage retail and consumer activities
- Bill vendors and airlines for airport service usage

These are challenges most legacy systems cannot satisfactorily address. Legacy systems often lack correct documentation and the interrelation between assets. Not only do these issues make the legacy system inadequate for today's modern airport, but they often lack modern integration techniques and fail to meet the current and evolving needs of ICT in the airport. This is especially true regarding preparation and planning.

The best approach for introducing state-of-the-art IT services into the airport infrastructure begins with identifying the right, industry-specific solution for airports' unique needs. Airport

IT and network operations managers need their infrastructure to manage a vast array of cable networks and IT services. They need a system that provides them full control of rollout projects, operational processes and all related information. Any new solution must deliver complete visibility into every facet of the airport infrastructure to support data-driven decisions to prevent service disruption, improve work processes based on precise workplans and shorten outage times due to faster root-cause-analysis.

A standard software solution for airports should include, at a minimum, the following functional components:

CABLE INFRASTRUCTURE

Data cables and communications services are vital to the modern business world. To manage them effectively, total transparency and graphical documentation of nodes, trays, sections and individual fiber-optic assignments in conjunction with service layers, is necessary. A complete cable management solution enables businesses to document, plan and manage all the entire cable and network infrastructure in an end-to-end view both in planning and actual mode.

IT INFRASTRUCTURE

Having complete insight into IT infrastructure enables airports to provision services quickly – from assets, to configuration items, to licenses, contracts and documentation. A complete IT infrastructure management solution will optimize every interaction between networks, servers, workstations, server and software management from both a technological and business viewpoint. Additionally, integrated license management and IT automation support can reduce IT costs and improve the quality of IT services. Furthermore, the enhancement towards a complete DCIM solution provides airport businesses with full control of data center operations regarding space, power, and cooling. The ability to assess and monitor a data center in real-time improves decision making and daily processes, all while reducing unplanned downtimes.

ICT SERVICES

Better organized service portfolio equals better IT service organization. A complete service management solution can support modeling and provisioning of service portfolios to increase the efficiency of IT activities. By providing the foundation for defining, managing, and monitoring business services and airport assets over their entire service lifecycle, you will be able to match service management perspectives with the IT infrastructure view.

The ability to provide customers with new digital services, and the ability to manage the associated infrastructure customers require, presents an opportunity to transform your airport into the hub of choice, even as pressure from competition intensifies. Providing superior service starts with gaining a clear and precise overview of your airport's valuable IT infrastructure and cable network assets.



ABOUT THE AUTHOR

Sean Graham, FNT Software

Sean Graham, General Manager of FNT Software's office in Parsippany, New Jersey, is responsible for operations in North America.



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An **App**-etite For Travel

Concessionaires are turning to apps as a new way to draw in customers while improving the overall traveler experience.

As airports deal with a traveler base that's spending more time in their terminals, the challenge has become to offer amenities that are unique and useful. One interesting trend is the creation of apps that allow passengers to order and pick up food and snacks from a variety of onsite restaurants.

To that end, three concepts — Airport Sherpa, Grab and Host2Coast — are hoping they can become dominant in the food/retail delivery app space.

Jim Schmitz is the vice president of innovation for Bethesda, Maryland-based food and beverage concessions operator HMSHost. The company released the second iteration of its app, Host2Coast, in eight airports in November.

The app, available in the Apple and Google Play stores, allows travelers to locate nearby dining options, see their menus, and pre-order food at select locations in Charlotte Douglas International Airport (CLT); Chicago O'Hare International Airport (ORD); Fort Lauderdale-Hollywood International Airport (FLL); George Bush Intercontinental Airport (IAH); Los Angeles International Airport (LAX); Miami International Airport (MIA); Phoenix Sky Harbor International Airport (PHX); and Seattle-Tacoma International Airport (SEA).

HMSHost is no stranger to airport food apps. In 2014, it launched the B4 You Board in select restaurants at Chicago O'Hare, Sacramento International, Phoenix Sky Harbor, Salt Lake City, and Minneapolis-St. Paul International airports. "B4 You Board was more of a test on functionality and to see if there was interest from

passengers. As it went along, we tested that, but never expanded the program," said Schmitz.

Host2Coast is a better representation of what HMSHost wanted in an app, said Schmitz. "So we put it in our top nine locations, giving travelers locations and menus for every location in every airport. That didn't happen with B4 You Board."

The HMSHost app is more focused on its own locations, while Grab and Airport Sherpa work more with all concessionaires. "Ultimately our plan is to integrate the app with partners like airports, hotels and hotels with software that will allow this seamlessly," he said. "We don't think saturation is a bad thing. It gives travelers as many options as possible."

The app allows travelers to find nearby restaurants, gives access to their menus and at some locations, pre-order a meal, pay and schedule a pick-up time for a food order up to four hours in advance. Travelers can also receive restaurant promotional alerts based on location.

Jeff Livney is the chief experience officer for Houston-based Grab. The idea from the app came from Livney and his co-founders, who all traveled a lot. "Two of them came from the airline business via United Airlines and Continental Airlines, so they understood the



passenger and the benefit of having apps that work across networks," he recalled.

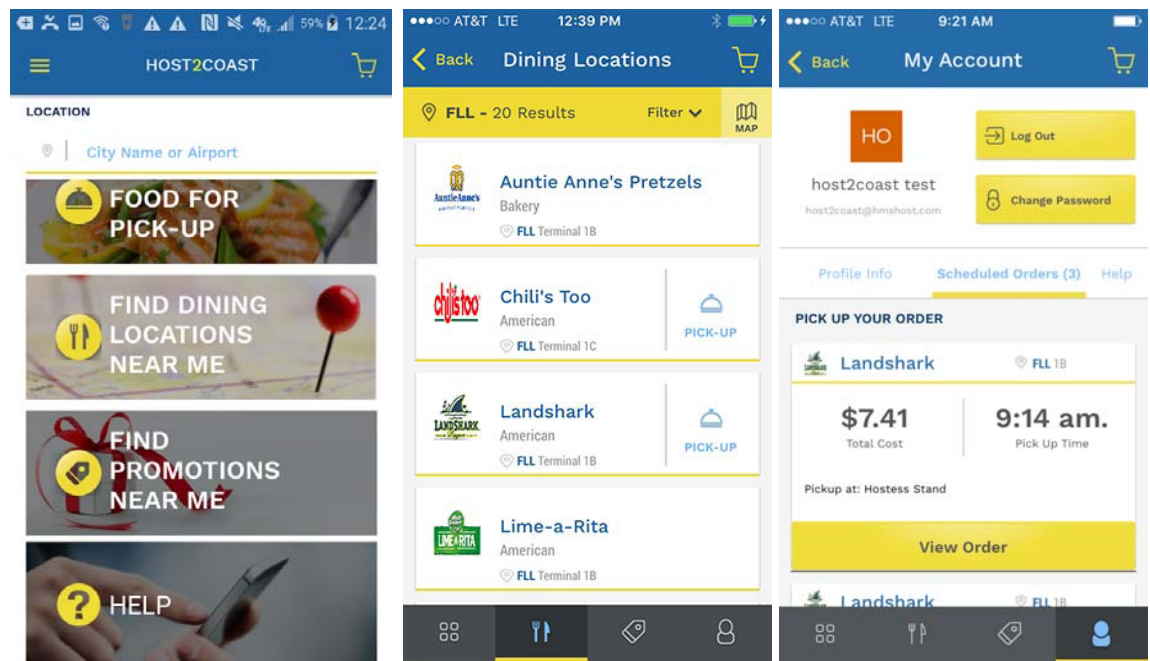
Concepts fail when there's fragmentation and only single operators, said Livney.

"We knew we had to have a product that was similar to the OpenTable [restaurant] app in order to be successful," he said. "We also realized that we needed people from the airline industry who understood passengers, so we came together and founded the company in 2014."

The founders spend time building Grab and launched it in Atlanta in October 2015. "Grab is now in close to 200 restaurants in 19 airports. It's been exciting to develop and grow relationships with these restaurants," he said. "We like that travelers see the value of Grab."

"We're working on integrating our products onto existing apps on iOS or Android. We're also in the process of embedding Grab inside the American Airlines app, which really boosts our distribution," said Livney.

Grab will also add retail and duty-free shopping, said Livney. "We'll be in our first location soon. When you think about it, it makes a lot of sense," he said.



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CONCESSIONS

The size and reach of Grab is great, and it partners with HMSHost, said Livney. "Their locations will be available through the Grab platform. And if Airport Sherpa gets off the ground, we can eventually partner with them," he said.

Patrick DellaValle, a co-founder of Airport Sherpa, says there are a few differences between his app and that of his competitors. "One key difference is that we offer travelers food pick-up and delivery, which we think is an important value proposition," he said. "We offer a higher level of personalization that focuses on a travel centric approach." His team is preparing to launch at Baltimore-Washington International Airport in the spring.

It starts with a traveler's flight information, said DellaValle. "With that, we can see departure times, connections and gates, which allows us to provide customized recommendations for food and retail. It allows us to give a more personalized approach with the user experience."

Both food and retail orders can be placed up to a week in advance and they will be delivered even if a gate changes. And if passengers want to pick up their own orders, the app includes walking directions with time estimates. Airport Sherpa is starting on the Apple platform, but will also develop an Android app, he added.

BWI was the launch airport for Airport Sherpa because of partner Alan Gluck's relationship with officials and concessions operator Airmall, said DellaValle. "Our company is based in the D.C. area, so we spend a lot of time

at BWI," he said. "It has a good volume of diverse travelers and its layout is conducive to the concept."

When it came time to pitch their concepts to airports, the companies took different approaches. HMSHost's Schmitz said he didn't need to pitch, since it was an extension of the brand. "When we launched the app in our first nine airports, we had other airports coming to us to be included in the rollout," he said. "The challenge becomes when an airport wants it for other restaurants but they're not HMSHost brands."

Grab didn't really have to pitch because it's part of the airport restaurant and retail outlets' distribution, said Livney. "We're actually a way for them to maintain their businesses and retain customers who don't have time to shop or wait for food," he said.

Airport Sherpa views itself as a platform that provides value to different groups of people, said DellaValle. "We view Airmall, passengers, concessions and other

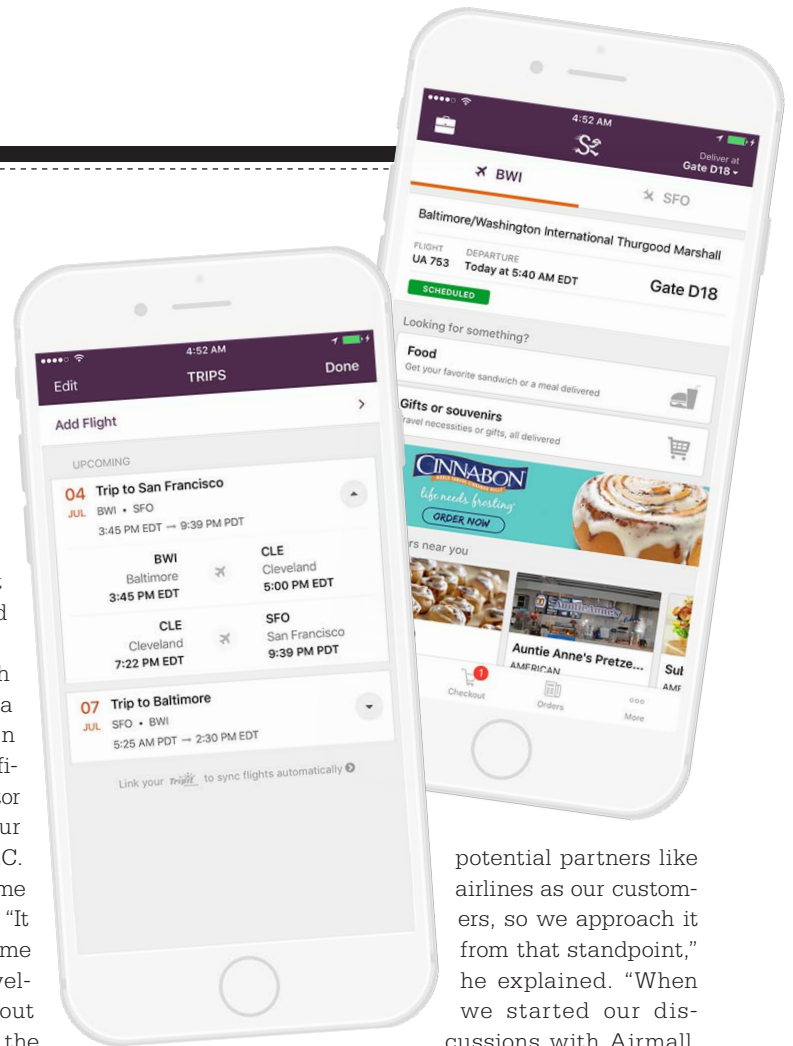
potential partners like airlines as our customers, so we approach it from that standpoint," he explained. "When we started our discussions with Airmall, we said that there was an

opportunity to improve the passenger experience and bring in more incremental revenue to concessions, Airmall and the airport authority."

When it comes to the technology needed to receive orders, Airport Sherpa works with individual operators using their platforms and integrating with that, said DellaValle. "It will be pretty individualized, since operators have different POS technology."

For HMSHost, the key is seamless integration of a vendor's POS and kitchen display systems, said Schmitz. "Unless we have this, the experience could be a disaster for passengers," he said. "It's all about the integration. Our operators must be able to provide the best experience. So if a manager has to key in an order, it could missed it when it's busy. That leads to a bad customer experience and bad ratings."

Like HMSHost, Grab focuses on integrating with its vendors' POS systems, said Livney. "POS integration is very important because of the volume of orders that are coming in," he said. "But we do have non-integrated solutions too where vendors manage orders and we provide the technology needed to do it."



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Customer-Driven Corporate Hangar Helps Seed Company **Grow Its Business**

The state-of-the-art facility helps Beck's Hybrids customize and refine its customer service.

Customer service is at the heart of any successful business and how each business approaches that concept can vary greatly.

For some, this could mean adopting a business model that provides customers with the information and opportunities they need to make the best product decision. For others, it can entail making the customer experience as easy and pleasant as possible to retain customers and gain new business.

And for a select group, it's both.

Beck's Hybrids is the sixth largest seed company in the country, the third largest seed company in the Midwest and the largest family-owned retail seed company in the world.

The 80-year-old operation is based in Atlanta, Ind., and serves farmers in nine states. It is owned by the Beck family and provides farmers with high-yielding corn, soybeans, wheat and elite alfalfa. Embodying the concept of farmers working for farmers, Beck's adheres

to a strong, down-to-earth work ethic built on "faith, fortitude and innovation."

That's why, in 2016, Beck's opened a private, state-of-the-art hangar to better manage its customers' experience.

"This hangar truly embodies the Beck family from the design to the execution of the business," said Caleb Bruner, the facility design lead for Beck's. "We pride ourselves in people getting to know our culture. By creating this space specific to our vision, we can control that message. This hangar is the face of our company to those who cannot easily drive to our headquarters."

CONSTRUCTING THE VISION

Beck's has found that when it brings prospective customers to its headquarters for a tour

and an opportunity to meet a member from the Leadership Team, 90 percent of those potential customers will buy the first year. Of those customers, Beck's has over a 90 percent retention rate.

"Flying them in has made the most sense," Bruner said. "Our marketing area has greatly increased in the last five years, from neighboring states to Iowa, Missouri, Tennessee and Wisconsin. The further from Indiana we grow, people don't always know Beck's."

Beck's, which bought its first corporate jet in 2001, has grown to include two nine-passenger Learjet's, a 17-passenger Falcon and a five-passenger EC-135 helicopter. Limiting the number of corporate flights, more than 95 percent of Beck's flights are customer-driven.

The company has exponentially increased its flight hours in the last five years by 213 percent, more than 400 percent since 2008 and is presently looking at a small increase in 2017. Prior to the construction of the hangar, these flights were conducted out of the local fixed-base operator (FBO) hangar.

"The FBO was owned by someone else and using their site limited our ability to manage



HANGAR DEVELOPMENT

our customers' experience to the level desired," Bruner said. "We want their experience with us to truly embody the quality of our company from start to finish."

Beck's hired Woolpert in January 2015 as the lead architect for Beck's Hangar.

The 19,000-square-foot facility is designed specific to the needs of Beck's and was the first corporate hangar of its type and size to be built at Indianapolis Executive Airport (TYO).

Woolpert provided the structural, civil, mechanical, electrical and plumbing (MEP) engineering, as well as the development, survey, structural and construction administration for the site.

The Beck family wanted the hangar to have a distinctive building shape to match their other buildings, which have been constructed with Behlen Manufacturing. They have a standard steel frame, corrugated sides freestanding in the middle and the curved white roof.

"We wanted the hangar to mimic the feel of the rest of our facilities, while embracing our customer-first business model," Bruner said. The company wanted the site to include amenities not always found at a hangar to set their facility apart. These included offices, a conference room, workout room, sleeping quarters, kitchens and welcoming lobby.



The climate-controlled system included air-conditioning, fans, two boiler HVAC systems and chillers, air compressors to ensure good air flow, and heated floors and sidewalks. Woolpert

"The interior was designed by Glendia Beck, who understands our customers and could provide a warm and welcoming space," Bruner said. "It's this personal touch that extends to customer service." The hangar includes a flight planning room with fiber-optic internet connections and maintenance shops.

Beck's employs eight pilots, four mechanics and one flight attendant at the hangar. Their responsibilities range from varying levels of administration, maintenance, cleaning, cooking and lawn care on top of flight-related responsibilities.

Complete electrical systems — including an emergency generator backup, LED lighting throughout, and apron and exterior ramp lighting — also were included in the hangar design. The climate-controlled system included air-conditioning, fans, two boiler HVAC systems and chillers, air compressors to ensure good air flow and heated floors and sidewalks.

"Midwestern winters can be rough. In the parking lot, we've added plugs with electrical power for customers' vehicles," Bruner said. "If they've left their keys behind during their flight, we'll warm up their cars. It's considered part of the movement of the customer through the process."

Beck's also wanted some of the mechanical elements of the hangar to be aesthetically pleasing and of comfort to the customers. The company wanted to convey that they were being transported by a very professional, clean and consistent "mini"-airport facility.

"With customer service at the heart of this project, the goal was to make it comfortable and convenient for customers to convene and hang out between flights," Bruner said. "Windows were constructed in the lobby to illustrate the pristine and professional condition of the hangar."

"When it came to fuel tanks, we didn't want storage tanks masking the experience we were cultivating."

This plan led to the construction of a 24,000-gallon jet fuel system in a self-ventilated, security-controlled canopy enclosure. Two tanks were concealed in a ventilated, open-air section of the enclosure, with an explosion-proof wall between the tanks and the building. This was designed as an extra level of caution to protect the system from the elements and also the employees and customers from the system.

Woolpert also designed a 40,000-gallon underground water storage tank for the hangar's fire protection system. "This allowed us to eliminate the need to have a pole coming out of the ground, and we could keep our 360-degree view," Bruner said. "This also was supported by the centerpiece of the hangar — its 120-foot-by-28-foot glass hydraulic door."



Two tanks were concealed in a ventilated, open-air section of the enclosure, with an explosion-proof wall between the tanks and the building. Woolpert

PAVING THE WAY

Beck's and Woolpert conducted analyses and worked with the airport, the Hamilton County Airport Authority and local municipalities to ensure the plan was approved and up to code.

"We worked with the airport directly to show why this hangar would be valuable to the airport, and made sure ordinances were met," Bruner said. "The fuel tank system, for example, took months to negotiate. But doing these necessary steps up front was absolutely critical to lay the proper groundwork for such a high-profile project."

The airport helped Woolpert and Beck's by bringing up aspects that hadn't been considered and showing considerable flexibility by being open to alternative options and negotiations. Woolpert's relationship with the airport, as well as its work with the Federal Aviation Administration (FAA), Homeland Security and Hamilton County, also provided support to the project. These relationships eased conversations and provided assurance that this vision was still grounded in reality.

"Because of the relationships we've built with our contractors, electricians and framers, and a 50-year history with Behlen Manufacturing, it greatly benefited us in building the hangar," Bruner said. "Sonny Beck and the local government officials had worked together before. All these small things have helped form a piece of Beck's history, and they came together for this project."



Read more: www.AviationPros.com/12354181

Author Chris Snyder is a Professional Engineer and senior director for Woolpert, where he's worked for more than 15 years.

Why Airline Capacity to Cuba is Falling Off

After one year of service from the U.S. to Cuba, what challenges are facing these routes?

Less than a year after President Obama restored commercial air travel between the U.S. and Cuba, airlines are cutting back on what looked to be promising routes. Some have speculated that airlines may have jumped the gun in the capacity they planned to deliver to the market, as we have very rarely seen a market grow as quickly as this. Others believe that some reduction was inevitable in such a new and explosive market. Let's look at the story the data tells.

Before the announcement was made in December 2014 that Obama was working to improve relations with Cuba, only 24,268 bookings were made between the U.S. and Cuba on scheduled air services that year. Considering there were no direct routes, more than 75 percent of passengers started or ended their journeys at Miami International Airport, but were routed through the Bahamas or the Cayman Islands to reach Cuba.

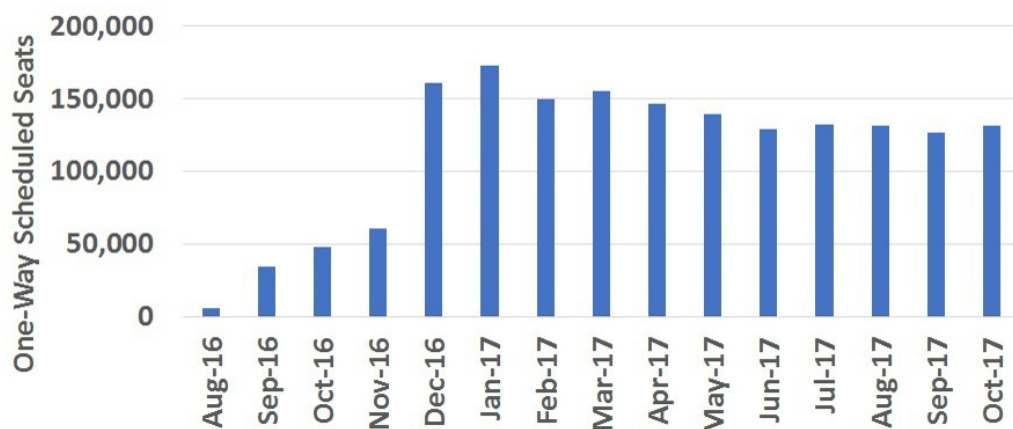
While interest in travel to Cuba remains high among many Americans, the once hopeful outlook of restored relations – and air travel – between the countries isn't looking as bright.

THE DEMAND THAT STOPPED DEMANDING

Though regular passenger service between the U.S. and Cuba formally reopened in November 2016, there was alternate air service available before the announcement. Before December, passengers relied on established charter operations, like PublicServiceCharters.com, and an American Airlines route to Holguín to get to Cuba. The table shows the rise in available seat capacity from November to December of last year, as many airlines waited for the holiday season to introduce the new routes. In December, budget and mainline carriers alike jumped on the available daily routes between the U.S. and Cuba, as Southwest, Delta, Spirit, Frontier and JetBlue all either added or expanded service to Cuba within a month. Almost overnight, air travel capacity went from 60,390 one-way seats to 160,648.

From August to December of last year, airlines offering scheduled service to Cuba jumped from five to ten, with routes suddenly available across 22 city pairs compared to

Scheduled Seats United States to Cuba
August 2016 - October 2017



Source: OAG Schedules Analyser

AIRLINES

the five city pairs available just three months earlier. This scale of growth has rarely been experienced elsewhere and while some may say it speaks to the high level of demand for the market, there are already signs that the demand won't hold.

MAKING A ROUTE SUCCESSFUL

Since the market opened, airlines have expect- edly cut back on scheduled capacity, now aver- aging about 135,000 one-way seats per month, down roughly 20 percent from the peak in January. Even with the decrease, seat capac- ity is consistently remaining four times what it was from the September 2016 level when American Airlines launched its first scheduled services to Cuba.

Looking at the data is easy, but when a mar- ket has been closed for more than 50 years, preemptively judging the possible demand for a destination is no simple task. In some cases, an educated guess might be the best bet. When airlines are looking to add a new route, factors they might consider include:

- Capital cities: When airlines are looking to expand their networks, many first look to capital cities as connectivity is usually a given.
- Major ethnic flows: Airlines take into con- sideration popular destinations from a cer- tain country. For example, an airline might

add more scheduled services between two city pairs where the demand is high and offer less frequent services from a different departure city but same arrival city. In the case of U.S.-Cuba direct air service, relaxed travel restrictions and visa entry policies can also be a major factor.

- Leisure markets: Airlines will also look to add service to potential leisure markets based on similar, established markets. The avail- ability of varying accommodation levels is also quite important for those markets with a high proportion of inbound leisurely-type travelers and rates to meet the degrees of hospitality. Airlines will factor in economet- ric data, such as the levels of GDP, and more importantly, disposable income, to be used as travel market foresight.
- Network size: Mainline and budget airlines both add services to build their networks, sometimes testing the water before taking the plunge. Historic stimulation rates also play an important role as airlines will look at how other new markets that have been opened have responded to the opening of direct services rather than indirect routings.
- Sector length: As crazy as it may seem, air- lines consider the sector length versus mar- ket opportunity when looking to expand. A



Florida-Cuba sector would probably be no more than an hour and 15 minutes; a sector to the Southern Caribbean would be two and a half hours, so an airline would perhaps prefer to run two roundtrips than one longer sector.

With the rise of the low-cost carriers, trav- elers are more willing to travel to destinations they might not have previously considered – for the right price, of course. Thus, when air- lines, especially budget operators, add new flights, it generates interest and curiosity among travelers. This is a strategy many air- lines use to create demand for underserved markets and provide an outlet for additional routes to airlines who are looking to expand and add more services.

WHAT'S WORKING, AND WHAT'S GOT TO GO

Even as recent as a few months ago, while some airlines were looking to pull out on some of their routes to Cuba, others were prepared on the sidelines, waiting to snatch them up.

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Most recently, it seems like many of the airlines offering regular services to Cuba are looking to opt out on at least a few routes, if not all together, including Southwest, American JetBlue and Frontier.

According to the numbers, there were 1,456 flights scheduled between October through December of last year, whereas there are only 1,275 for this summer. As major carriers are pulling out, smaller city pairs are taking a noticeable hit. This is a classic thing when new markets open. Airlines "test" the market and will over time retrench back to the major city pairs. Sometimes they will leave that city pair completely and other times they will reduce weekly frequency or in some cases merely run seasonal services. Over time, some of those routes may actually grow back to the initial levels. Though not up-to-date compared to U.S. standards, the international airport in Havana is still the most equipped to handle the capacity of incoming flights and passengers from the U.S., and thus remains the most popular arrival destination for travelers and airlines.

POLICY IMPACTS AND WHAT THEY MEAN FOR CUBA

While current policy changes threaten to undo years of work, there is also an underlying fragility to the U.S.-Cuban travel market and taking this away seems contrary to America's sense of pioneering. U.S. airlines have invested considerably in both capacity and marketing to advertise their services. Would the government want to risk upsetting the market with a complete policy overhaul? Should travel policies to Cuba be reversed, airlines could stand to lose millions of dollars and the direct and indirect impacts felt would be widespread.

Not only would airlines be losing out on revenue, but a greater economic impact might be felt by the local Cuban chain as jobs could be stripped. But just because the U.S.-Cuban market may be at risk doesn't mean other markets are. Interest in Cuba as a leisure destination, especially when other popular travel markets are facing threats like terrorism, from Canada and Europe continues to grow. Compared to the 116,106 one-way seats flown from Europe to Cuba in July 2016, bookings were up over 25 percent for July of this year, with 145,211 one-way seats to Cuba departing Europe. Of those bookings, travel from France and the UK

has risen more than 60 percent and 44 percent, respectively, in July 2017 when compared to data from the same month the previous year.

LOOKING AHEAD

Before, one could have made an argument either way as to the existence of a travel market to Cuba for Americans. Now, there is no doubt that the interest and curiosity among travelers exists. While some policy reversals have made it once again more difficult to travel to Cuba, Americans now have the desire to go. Since there is capacity available, travelers will find other ways to get to Cuba if direct air service is no longer available.

Even if more U.S. airlines continue to reduce routes to Cuba, the country will not be left in the dust. Looking from a global scale, the aviation industry is seeing continued interest from the European Union and Canada in Cuba as a tourist destination.

Never have so many aviation industry experts seen a market expand so rapidly – seemingly overnight – as U.S. to Cuba air service. The world is getting smaller, people want to travel and airlines want to and can help facilitate this. Pulling the plug now would be very difficult and may prove to be more trouble than its worth.



ABOUT THE AUTHOR

John Grant, OAG



One of the most respected aviation experts in the industry, John's analysis have been featured in major publications including The New York Times, CNN, USA Today, BBC, the Financial Times, TIME and more. John captures and analyzes complex aviation data and industry trends to provide commentary on what's driving changes in the travel market. He's served as a featured speaker at major industry events including the CAPA Americas Aviation Summit, the CAPA World Aviation Summit, the Routesonline Strategy Summit and more. John is a senior analyst and executive vice president at aviation data provider OAG, a partner at MIDAS aviation, and owner of JG Aviation Consultants, Ltd. At OAG, John manages and works to enhance OAG's product portfolio and new product development.

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Gassed Up and Ready To Go

Several weeks ago, major media outlets reported on an unscheduled airline landing due to an odor in the cabin that some were attributing to “passed gas.” While no one was hurt and many on the ground were later heard to say that it was a mechanical odor, whatever that is, it did cause our WTF (Way Too Freaky) alarm to go off in our headquarters. This MIFL (Methane Induced Forced Landing) event greatly concerns the IBT as several years ago, we took great pains to examine just such a possibility during our study of EBI (Explosive Body Implants). While EBI countermeasures never made it out of the lab into full production, one such study did result in the creation of a testing device to help prevent MIFL.

Code named SHAMU (Super Human Asphyxiate Mitigation Undertaking), this operation was directed at preventing would be terrorists from increasing the amounts of asphyxiates a person could produce from eating chemically enhanced beans, cabbage, cheese,

soda and eggs. By increasing the amount of asphyxiates a person or multiple people could produce in a thinner oxygen environment, such as at high altitude. This condition could result in dangerous levels of nitrogen and flammable methane being introduced in the cabin of an aircraft. In the right situations, this toxic level of asphyxiates could permanently impair or disable aircraft passengers. Our lab work proved that an average person can expel asphyxiates at the rate of 10 feet per second and that a person, who could flatulate continuously for 6 months and 9 days, could produce the effective gas of an atomic bomb. Taking the math further, we can work out that it would take nearly 56,160 people off-gassing simultaneously for 15 minutes to create the effects of an atomic bomb. Since even the most densely loaded A380 cannot hold anywhere near 56,160 people, the potential of creating a FLAT-BOMB (flatulence bomb) at 30,000 feet is impossible. These calculations for the SHAMU operation did result, however, in the industry’s first ever MED (Methane Evacuation Device).

The MED is vacuum pump technology that when inserted in a posterior docking port, just prior to boarding, will evacuate all trapped air thereby rendering inert each passenger as a possible toxic asphyxiate carrier. While the MED did exceptionally in trials, it was never advanced to the operational environment of an airport, in part due to difficulty in creating an acceptable “plug-n-play” port for each passenger and the potential to improperly dispose of the captured contaminate thereby contributing to global warming.

As we, as an industry, continue to work against the ever-evolving threats to the aviation system by those who would do us harm, the IBT continues their work to create devices to defeat threats that have not even been thought of yet. Due to overwhelming safety concerns, we are not at liberty to discuss future, unimagined threats nor mitigation devices to defend against these future undetermined threats. However, you can be sure, much like the MIFL above, our WTF response is always at the ready should the situation warrant.

Finally, the IBT has received many requests to study the mitigation efforts to combat “arm-rest” feet. We are currently in trials now for our Top Ten List of mitigating this corny and callus attitude of passengers from the seat behind you using your armrest as a foot stool.



BOGGUS TERMS

- ▶ **IBT:** Institute of Boggus Talk
- ▶ **WTF:** Way Too Freaky
- ▶ **MIFL:** Methane Induced Forced Landing
- ▶ **EBI:** Explosive Body Implants
- ▶ **SHAMU:** Super Human Asphyxiate Mitigation Undertaking
- ▶ **FLAT-BOMB:** Flatulence Bomb
- ▶ **MED:** Methane Evacuation Device

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