Seamless travel

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The technological revolution

In an effort to help combat the capacity crunch affecting the airport and aviation sector, the industry is turning to technology.

NOT a week goes by that we don’t see news of another airport exceeding its previous passenger number record. IATA has predicted that there will be 7.8 billion passengers taking to the skies by 2036 – almost double the four billion travellers expected to fly in 2018. While this is fantastic news for the aviation industry, it also means that airports will be under ever-increasing pressure to cope with the influx.

The issue is not straightforward to resolve. In many areas, particularly within Europe, the skies are already over populated and there is no further room for physical expansion. So what measures can airports take to accommodate these additional passengers whilst ensuring their bottom lines aren’t hit, without compromising on the passenger experience? There is no one-size-fits-all answer, but operational streamlining is certainly an approach that is helping.

Over the past few years we have seen a huge surge of technological advancements in the airport sector – from robotics in physical processing, to streamlining security process, to the ever-increasing use of self-service and, more recently, the introduction of artificial intelligence across the industry. These evolutions all have the common goal of helping to enhance efficiency whilst improving the passenger’s experience.

Going forward, we’re likely to see more deployments aimed at creating a seamless travel experience, which will ultimately benefit the entire industry.

We will continue to cover these themes in the magazine and on our website and look forward to seeing many of you at the Airport Show in May, where the discussion can continue! Come and find us on Stand 6550.

As always, if you have feedback or would like to contribute to the magazine or website, please don’t hesitate to contact me via the email address above.

And don’t forget you can join our groups on social media platforms – just search or subscribe online for International Airport Review.

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Published bi-monthly, International Airport Review is a primary resource for professionals working within airports, airport operators, airlines, industry associations and research bodies.
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First turbines start spinning at new Royal Schiphol Group wind farm

ENVIRONMENT

THE operator of Amsterdam Schiphol and Rotterdam The Hague airports has opened a wind farm to supply green energy to all its airports. The ‘Flying Electric’ and ‘Green Tower’ will supply 10% of the airports’ total energy needs.

The Royal Schiphol Group worked with sustainable energy provider Eneco and the municipality of Vianen to build three wind turbines, two of which will provide energy for the Schiphol Group.

This supply amounts to around 20 GWh per year, which is comparable to the annual energy consumption of 17,000 households.

Eneco will build more wind turbines for Royal Schiphol Group over the next two years, so that by January 2020 all the power for the airport company will come from newly-constructed Dutch wind farms.

The news follows the announcement in August 2017 that the group had struck a deal with Eneco for 200 GWh of green energy every year for 15 years.

Since January 2018, Eneco has been supplying Schiphol, Rotterdam The Hague Airport, Eindhoven Airport and Lelystad Airport with sustainable power. Together, the airports consume around 200 GWh, which is comparable to the consumption of 60,000 households, or the size of Haarlemmermeer or Delft.

The long-term contract with Royal Schiphol Group enables Eneco to invest in new wind farms, meaning Schiphol will not be drawing power from the existing sustainable energy network. It will also increase the total supply of sustainable power in the Netherlands.

Changi appoints consultants for Terminal 5 build

CONSTRUCTION & DESIGN

Changi Airport Group (CAG) has announced the appointment of three teams of consultants for its Terminal 5 (T5) build. The trio will provide architectural, design and engineering consultancy services for the development.

The firms that have been appointed are:

- KPF (Singapore) Pte Ltd, in partnership with Heatherwick Studio and Architects 61 Private Limited, for the provision of architectural design services; Arup Singapore Private Limited, Mott MacDonald Singapore Pte Limited, and Surbana Jurong Consultants Pte Ltd, for the provision of engineering services; and
- DP Architects Pte Ltd, for the provision of design services for commercial spaces.

These firms will provide full consultancy services for the design of the main terminal building, satellite terminal building, ground transportation centre and primary landside roadway.

The airport also appointed the following consultants for the T5-related landside and airfield works: Arup Singapore Private Limited, Mott MacDonald Singapore Pte Limited, Surbana Jurong Consultants Pte Ltd and Changi Airport Planners and Engineers Pte Ltd.

Yam Kum Weng, CAG’s Executive Vice President for Airport Development, said:

“We look forward to taking the development of T5 forward with our appointed consultants. With the aviation industry expected to experience strong growth in the coming decades and demand for capacity at Changi Airport projected to increase annually, the development of T5 as a single integrated terminal will ensure that Changi Airport remains competitive as a leading air hub capable of serving the growing needs of our airline partners and taking the travel experience of passengers to new levels.”

The terminal is part of the larger Changi East development project, which, once complete, will provide Changi Airport with additional capacity of up to 50 million passenger movements per annum and 100 additional aircraft stands.

Industry experts gather for Advisory Board meeting

INTERNATIONAL AIRPORT REVIEW

ON 13 APRIL 2018, International Airport Review held its first Advisory Board meeting in central London. The meeting enabled the brand’s editorial and commercial teams to meet face-to-face with board members to discuss content, business development and the industry in general.

The meeting also provided an opportunity to welcome the Advisory Board’s newest member, Dr Rachad Nosaar, Business Development and Marketing Manager at Huawei Technologies Co. Ltd., who joined the team in March 2018.

International Airport Review first established an Advisory Board back in 2012, with the aim of securing leaders in their specialist fields to help curate the highest quality content for the brand’s international audience.

The meeting was a great success and proved to be an insightful day for all involved. International Airport Review would like to extend its thanks to all the members who gave up time in their busy schedules to attend. More in-depth coverage will be presented in the June issue.
TSA completes improved screening procedure rollout in U.S.

TERMINAL OPERATIONS

The Transportation Security Administration (TSA) has announced it has completed a rollout of enhanced screening procedures for carry-on baggage as part of a greater effort to raise the baseline for aviation security.

The more stringent security measures require travellers to place all personal electronics larger than a mobile phone in bins for x-ray screening in standard lanes. In addition to screening personal electronic devices separately, TSA officers may instruct travellers to separate other items from carry-on bags, including dense foods and powders. Passengers are encouraged to keep their carry-on bags uncluttered to ease the process and prevent delays.

“I am committed to continue raising the baseline for aviation security, and these enhanced screening measures enable TSA officers to better screen for threats to passengers and aircrew while maintaining efficiency at check points throughout the U.S.,” said TSA Administrator, David Pekoske.

“Our security efforts remain focused on staying ahead of those trying to do us harm and ensuring travelers get to their destinations safely.”

The enhanced carry-on screening procedures have been phased in over the past several months in standard lanes at airports across the country. While it is possible that passengers may experience more bag checks and additional screening of some items, TSA officers will be conducting the screening with quicker and more targeted procedures.

Travellers enrolled in TSA Pre✓ will continue to experience expedited screening by not having to remove shoes, the 3-1-1 liquids bag, laptops, light outerwear jackets, or belts.

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IATA supports construction of new airport in Mexico City

CONSTRUCTION & DESIGN

The International Air Transport Association (IATA) emphasised its support for the construction of a new international airport for Mexico City that was launched in 2014 to replace Benito Juarez International Airport.

“The current airport is bursting at the seams. It serves 47 million passengers – almost 50% over its design capacity of 32 million. A new airport is vital to enable Mexico City to benefit more fully from its ideal geographic position linking North America and Latin America,” said Peter Cerda, IATA’s Regional Vice President for the Americas.

Aviation already makes an enormous contribution to Mexico’s economy, supporting one million jobs and 2.9% of GDP, including the economic contribution of tourists arriving by air. However, according to a new IATA study, Mexico is underperforming for a country of its size in terms of its integration with the global air transport network.

This means that aviation is not fully delivering the benefits that it could with sufficient infrastructure.

The IATA study also identifies the cost of missed opportunities should infrastructure development fail to keep pace with demand for aviation connectivity. If the new airport is not built, it could mean 20 million fewer passengers per year by 2035. This translates into a negative impact of up to $20 billion in future GDP contribution and up to 200,000 fewer jobs in Mexico supported by aviation in 2035.

“With its enormous local population, strong attractions for business and tourism, and geographic advantages, Mexico City has the ability to play a much bigger role on the world stage. But for that to happen, aviation infrastructure needs to be adequate and affordable, which is why it is absolutely vital that the new Mexico City Airport is built as planned,” said Cerda.
Promoting learning and change

Mats Berglind, Interim Head of Innovation and Digital Innovation Manager at Swedavia, reveals how a swift proof of concept process can help airports to promote positive change and ultimately become more efficient.

It is very common for speakers in this day and age to talk about Kodak and the company’s fall when the digital camera took over the market. “They didn’t understand that the market was changing...” To this I say that I think they did – but it is one thing to see change coming and another to actually change the company accordingly.

Today, many companies know that ‘what got us here, won’t take us there’, but what does that mean? What needs to be done differently? And what new abilities does the company need?

At Swedavia we concluded that it was crucial for us to understand new products, services and customer behaviour in our own, and in other, markets. We have had, and continue to have, a great market insight team which scans the markets for new trends and compiles competitive analysis. What we needed was to quickly gain insights through learning. We needed a methodic way to do fast proof of concepts and experimentation. Swedavia was inspired by the Lean Start-Up methodology, and based on this, we created a new entity which we named ‘the Function Factory’. We have now been using it for almost three years and are currently completing a new proof of concept every month.

So far, we have tried out and learned about indoor wayfinding and asset tracking, having artificial intelligence as a co-worker, new ways of managing app rides (e.g. Uber), self-service kiosks that only print bag tags, self-service kiosks that automatically measure cabin luggage, and much more. We calculate that about 80% of these Function Factories have led to an actual (small or big) change at Swedavia, or is well on its way to doing so.

Some Function Factory success stories include asset tracking, which has enabled Swedavia to track its wheelchairs through the terminals; the cabin-approved test, which enabled cabin baggage to be measured early in the passenger process; and working in close coordination with our co-workers. In this instance we spent a week in the ground handling coordinator’s room to create a concept for a mobile app to help our ground handling agents work more efficiently. The app is now up and running.

Over time we have learned that the main success factors for fast-paced proof of concepts is to have:

1. A clear and easy mandate on who gets to decide that a Function Factory should start. In our case, only one member of our IT board is required as a sponsor (meaning forums and committees aren’t deciding what proof of concepts will be done in advance as with a portfolio plan). Instead, this is handled in an agile way based on current needs and all learnings are reported to the right stakeholders during or after the Function Factory.

2. Easy access to funds. The Function Factory pays for it all, up to a maximum of approx. €25,000.

3. Cross-functional teams – success only comes when we do Function Factories together within our company and with engaged external partners.

When launching Swedavia’s adjusted mission statement early 2018 – ‘Together we make it possible to meet’ – Swedavia CEO, Jonas Abrahamsson, emphasised that it’s the ‘together’ part that is the key to success. He also announced that innovation and digitalisation is to be one of five main focus areas for the Group. In Swedavia’s efforts to step up the innovation work and make it even more methodical, the Function Factory will be one of the most important parts going forward.
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What technologies has HIA introduced to enhance the airport’s digital capabilities?

Our goal is to provide a relaxed and seamless experience for the millions of valued passengers that depart, arrive, or transfer through HIA every year. Such customer experience is optimised processes and innovative technology.

To provide a strong foundation for our digital agenda, we have continued to invest in upgrading and optimising our backbone technology infrastructure so that it remains secure, scalable and robust in order to sustain our record growth and enable resilient operations.

Furthermore, the development of passenger self-service capability has been a major focus; and so far self-service technologies have been implemented for check-in, bag-drop and border control. The aforementioned self-service capability and our fully-automated baggage systems go a long way towards achieving this. However, there are many more opportunities for digitalising airport operations to enhance passenger experience.

How can the passenger experience be enhanced by digitalising certain aspects of the airport’s operations?

Today, airports around the globe are facing similar challenges: an increased air traffic with tech-savvy and demanding passengers who are looking for a smooth experience while in transit. Passengers no longer just want an airport that is a pit stop to their next destination. At HIA, we are converting these challenges to opportunities by positioning the airport as a destination on its own, such as with our substantial artwork displays, along with a solid digitalisation plan aimed at a hassle-free passenger experience.

Research has showed that passengers, naturally, feel anxious at airport touch-points with long queues. Therefore, our first priority is to reduce waiting times for our travellers. The aforementioned self-service capability and our fully-automated baggage systems go a long way towards achieving this.

Another example is our ongoing implementation of the A-CDM (airport collaborative decision making) platform. Once fully operational, this platform will facilitate all key airport stakeholders to collaborate more effectively to optimise flight turn around processes, further improving our renowned efficiency and on-time performance and thus passenger experience.

Our efforts are bearing fruit as demonstrated by the latest accolades at the Skytrax World Airport Awards 2018. HIA has been ranked fifth best airport in the world and the Best Airport in the Middle East for the fourth consecutive year; a solid sign of satisfaction and trust from our passengers.

How big is the issue of data storage for an airport like Hamad, which is planning to dramatically increase its capacity over the coming years?
HIA has welcomed over 120 million passengers in less than four years since the start of its operations, and our 2018 first quarter results look very encouraging. With a large passenger terminal complex of 600,000m² and the second phase of our expansion plan to welcome 50 million passengers a year by 2022, the challenge of data growth and storage ranks high on our list of priorities.

Traditionally, the data storage demand for airports was led by the massive volumes of video footage from visual surveillance (CCTV) systems. With approximately 12,000 CCTV cameras across the HIA campus, coupled with regulatory requirements for security systems, HIA is no exception. However, increasingly the demand is being driven by new-gen systems that acquire and analyse data from sensors around the airport in near-real time and unstructured data from social media feeds – essentially what the industry refers to as ‘big data’.

How has the airport dealt with this issue?

Over the next few years, our CCTV storage requirement alone is expected to exceed 50 petabytes. Therefore, we have recently partnered with a global technology leader to redesign our storage platform to make it robust, scalable and greener in terms of energy demand, while occupying substantially less footprint in our on-premise data centre space.

To address the aforementioned big data challenge, we are now seriously considering Infrastructure as a Service, Platform as a Service, and even Software as a Service models under private/hybrid cloud deployment architecture, within the framework of relevant national data sovereignty regulations.

**What is the essence of a ‘smart’ airport?**

The ultimate goal for HIA is to ‘empower’ our passengers at every step of their experience at our airport with proactive, relevant, accurate and timely information, along with self-service options. To put it simply, the essence of smart airport is to give the control back to the passenger for enjoying a memorable journey from the moment they enter the airport to the moment they are seated on the aircraft, with minimal human interaction, if they so desire.

**Going forward, what changes do you anticipate seeing at HIA?**

Our customer-centric ‘Smart Airport’ programme will continue to see us invest in innovative and best of breed technologies; and we will continue to develop and leverage strategic partnerships with industry leaders in both aviation solutions and IT infrastructure technologies spaces.

In the pipeline we have various initiatives to trial and roll-out robotics for passenger facilitation; block-chain technology for rapid and secure sharing of data across stakeholders; and an IOT platform that will enable the airport and its stakeholders to optimise the utilisation our assets, namely our people and equipment, to achieve the highest possible efficiency, security and comfort.

However, the most publicly visible changes will be seen in our wide-scale deployment of biometric identification and verification to facilitate fast and secure travel through not only at the mandatory airport touch points such as check-in, bag drop, security check, border control and aircraft boarding; but also for providing information assistance: for example, we are pursuing integration of biometric identification and language translation engines to offer personalised information in terms of content and language. This is often a challenge at our international hub airport where it is not unusual to serve passengers speaking hundreds of languages daily. It goes without saying that HIA’s use of biometrics will consider customer data privacy concerns, and comply with relevant local and international regulations.

**SUHAIL KAMIL KADRI** has been Vice President of Informational Technology at Qatar’s award-winning Hamad International Airport for over five years. He has more than two decades of experience in aviation technology at Emirates Airlines, Qatar Airways and Abu Dhabi Airports. At Hamad International Airport, he is responsible for all aspects of information, communication, security and screening technologies and solutions.
Community app: The cure for airport campus fragmentation

Although it looks like a single entity from the outside, airports are mini cities hosting a collection of independent organisations including airlines, ground handlers, retailers, restaurants, police, immigration agencies and hotels. Getting the right information to the right person at the right time is crucial for the airport ecosystem to operate efficiently. Head of IT Commercial and Innovation at Gatwick Airport, Abhi Chacko, reveals how the airport turned to app technology to ensure this could be achieved.
Unfortunately, the inherent fragmentation of such an ecosystem makes it difficult for information to flow quickly. Gatwick Airport alone has over 250 independent businesses operating on its campus, which we collectively refer to as ‘the Gatwick family’. Efficiency is vital to keep costs low while improving service standards for increasing passenger volumes. The traditional way of pushing information between organisations through host-to-host links and then sharing that information with their respective employees is complex, expensive and time consuming.

The airport Community app
We came up with the idea of the Community app as an antidote to the inherently fragmented nature of the airport. We launched it in early 2016 and today we have more than 12,000 people using it on a daily basis. It keeps the entire workforce in tune with the airport; helping them to make the right operational decisions and to assist passengers. The app is free to download for the entire Gatwick family. Its features include:

- Airport status, including disruption, weather and rail/road updates
- On-time performance statistics, broken down by airlines
- Arrival and departure taxi time performance
- Progress of daily operations, highlighting the number of arrived/departed flights
- Searchable flight information with a full operational timeline
- Information on cancelled or delayed flights
- Arriving and departing passenger numbers by the hour
- Staff discounts and offers
- Airport calendar highlighting key events
- Airport contacts list
- Jargon buster for aviation acronyms
- The ability to set up alerts for specific events.

Improving performance
Nobody wants to wear an ID card and look lost when a passenger asks them a question. The availability of real-time flight information with check-in zones, terminal information, gate numbers, etc. ensures that anyone walking around the campus wearing an ID card can respond accurately to passenger queries. Many staff members download the app in preparation to assist such passengers. The app has also enabled a range of businesses to improve their operational efficiency. Take the on-time departure (OTD) dashboard, for example: OTD screens on the Community app show how each airline is performing for the day against their target. This gets updated after every flight departure. It has broken down silos that previously existed within the airport when it comes to performance-related information. An airline or ground handler can benchmark how they are performing against their peers on a particular day, factoring in external influences such as air traffic control strikes or weather conditions. This information is available to everyone on the campus – whether they are a bag loader working for the ground handling company or a senior executive of the airport.

The league tables have helped us to instil a sense of healthy competition among airlines and ground handlers with the aim of improving performance. It has also removed an abundance of excel-based reporting, which featured heavily within each organisation, as the information is now readily available on their smart phone.

More generally, the app is helping members of the Gatwick family to improve their daily operation, resource planning and decision making. Over time, it has become a vital tool in disruption management, as well as in summer and winter readiness preparation.

The app has also helped us to reduce costs and pay for itself. The Command Centre at Gatwick historically used SMS to keep all airport staff informed operationally. Since implementation of the app, Gatwick has achieved a 70% cost reduction (or cost avoidance) on operational SMS messaging, as many people are now using the app to obtain information and receive alerts.

Evolution
As time goes on, the app continues to evolve, with additional features being added, such as:

- The app prioritises flights that are likely to get delayed so that the airport or ground handling teams can allocate additional resources to recover it. This has helped us to improve OTD performance
- Passenger tweets related to Gatwick have been enabled, giving everyone a good perspective

The inherent fragmentation of such an ecosystem makes it difficult for information to flow quickly
on what passengers are saying about the airport, airlines and other entities on campus

- Staff bus departure times have also been enabled, helping staff members to avoid time wasting
- Users can now report a facility fault by taking a picture through the app
- When ground handlers have to offload a bag from an aircraft, knowing the colour and size of the bag will speed up the process, avoiding delays offloading bags when passengers are late to gate and have hold luggage. The bag image taken at the bag drop point has been enabled on the app for the benefit of the ground handlers
- Information about which passengers have crossed the security gates is now available to the airline boarding agents. This will help them decide if they can close the flight early.

Challenges

With so many businesses operating onsite, the main challenge for the app was to establish a way to reach out to these organisations and develop a product that they would find truly useful.

Gatwick runs a B2B IT Customer Forum every quarter, which is open to all entities operating on campus, where we talk about IT operational issues, ongoing projects and innovation. We use this forum as a platform to validate innovative ideas as well as share new features on the Community app.

We have also promoted the app through emails, intranet, stand-up posters at staff entrances and corporate magazines. Making the app rich with relevant information and assigning a champion for its promotion are essential ingredients to making it a success in any airport. Ultimately, though, it’s popularity can be largely attributed to those individuals who downloaded it and then promoted it to their contacts.

What is the future of this type of tech for the airport?

From the outset, we knew that the problem we were trying to solve exists in every other airport, although many airports do not recognise it. We therefore partnered with AirportLabs to develop the app and make it available for the entire industry. This proved to be a very successful strategy with 11 other airports (including Dubai, Edinburgh and Milan) deploying it for their respective airport campuses. This multiple airport adoption of the app has enabled us to keep the cost of support – as well as the new features – low.

We are delighted see that other airports and airlines are benefiting from the Community app and are proud to have contributed to the aviation industry in this way. We are also happy that we chose the right partner who understands the aviation domain to develop the app.

“Since implementation of the app, Gatwick has achieved a 70% cost reduction (or cost avoidance) on operational SMS messaging”
Altus is a Big Data tool and a vital source of intelligence for route analysis. How do airports and airlines use the airfare intelligence as a route planning tool?

Our airfare business intelligence (BI) tool, powered with Airfare Big Data, assists users in getting additional insight on profitability analysis supporting route development. For example, Altus allows its users to perform in-depth studies and analysis of airfares to understand new routes’ profitability and level of competition. The tool is based on one trillion samples of historical airfare data and grows by several billion airfares every day. The intuitive interfaces enable airlines and airports to visualise billions of airfares, thus getting an overview of price development at network, route, and even flight level. Only the right combination of big airfare data and adequate visualisation can lead to actual insights. This is the foundation on which we have developed the BI solutions for route planners.

During the webinar, you shared insights from a recent case study analysing the performance of Norwegian Air for the London-New York route. Could you summarise what airports can learn from it?

Our Norwegian Bet case study was the most read and downloaded study we developed in 2017. Consequently, we were eager to further analyse one of the most celebrated success stories of the past year: Norwegian’s long-haul operations from London Gatwick to New York J.F.K. We looked at the airline’s financial performance over 2016 and 2017, carrying out analysis which resembles what each airport would do to understand the performance of its airline customers.

During the webinar, we looked at how Airfare Big Data allows airports to analyse airline customers’ performance and identify new revenue opportunities. Based on the analysis supported by our BI tool, we were able to share intriguing findings. The partnership between London Gatwick and Norwegian Air can be used as a benchmark of successful collaboration between airlines and airports. From an airport perspective, considering the impact that Norwegian’s low-cost long-haul strategy had on both Gatwick and London Heathrow, it is reasonable to say that the two airports have been presented with untapped opportunities, but also with threats.

This case study is an example of how Airfare Big Data can provide route planners with crucial insights when creating a business analysis for route development and network planning activities. Moreover, aside from getting an impression on a given route, the analyst can forecast and evaluate whether a competitor’s strategy will be successful.

How will this technology evolve to better serve the need for further customisation that most airports have?

We have been supporting airlines, airports and travel agents with high-quality airfare data and analysis tools for the past 18 years and are now focusing even more on BI and data visualisation. Big Data is no longer a buzz word but a reality in the aviation industry. Over the past few years, together with our customers, we have focused on Big Data handling and data visualisation to extract actionable information. Considering INFARE’s focus on customer-centricity, the beauty of our solutions lies in the fact that our tools all have been developed incorporating the feedback and input we have collected over the years.

We are very aware of the customers’ needs for customisation, especially those working with large markets. During the webinar, we received many questions directly relating to customisation, such as comparing more than two routes and collecting data from OTAs. We want to keep evolving and with the opportunities offered by advanced BI, such as the introduction of Machine Learning Technologies, and by enlarging our tech stack, we are exploring alerts and predictions of price movements.

During the webinar, you shared insights from a recent case study analysing the performance...
Today’s passengers expect more from their journey; demanding a hassle-free and pleasant experience throughout. To keep up with today’s tech-savvy customers, it’s important for airports to utilise technology and streamline their operations to ensure the vision of seamless travel continues to become a reality.
The future of air travel – where airports can truly begin to provide a walkthrough experience from check-in to the aircraft door – is getting closer. David Kershaw, Portfolio Director for Airport Passenger Processing at SITA, reveals how through a combination of new technologies and streamlined processes, the vision of seamless travel is fast becoming reality.
As passengers will always have to go through checks and processes when they fly. You have to check-in at some stage, but that at home, on the move or at the airport. If you’re putting a bag in the hold, that needs to be checked in too. The airlines need to verify that you are meant to be travelling, and the authorities want to know who you are too. They also want to be sure you are not carrying anything dangerous. There is no way to get away from these necessary steps, but technology can be deployed to minimise the impact they have on the passenger journey.

The air transport industry has promoted the idea of seamless travel for many years. IATA’s vision for its current Fast Travel program is that, by 2020, 80% of passengers be offered a complete suite of self-service options based on industry standards. What that means for the passenger is a faster and smoother journey. In fact, IATA estimates that for outbound passengers, 10 minutes from kerbside through to duty free is possible and is already happening at several airports today. The inbound journey is more difficult to predict because at major hubs it can be a long way from the gate to the baggage carousel, and border control must be factored in. However, IATA estimates that 30 minutes for the inbound journey is possible.

That vision is several steps closer to reality around the world as airlines and airports pilot new technology such as passenger flow management and automated border control gates, biometric solutions and the increased use of kiosks. At the same time, the proliferation of smartphones means mobile technology is playing an increasingly important role in self-service.

Passengers like it and they want more of it
Fuelled by the mobile revolution, self-service is now an option for every element of a flight, from initial booking to destination border control and everything in between. According to SITA’s 2017 global passenger survey, 81% of passengers carry a smartphone, 43% carry a tablet or laptop and one in five travels with all three.

A growing number of passengers want to use mobile technology at every point of the journey, and many already do. SITA’s research shows that 74% want flight updates on their mobile devices, 66% want to be able to use mobile technology to report mishandled bags and 64% want to be able to track their bags. The list goes on, but the point is that the demand is there, and increasingly, so too are the means.

Self-service contributes to a seamless journey
One of the biggest complaints passengers have about their journey through the airport is having to queue. This isn’t just bad for passengers; it is also bad for the airport. Research among passengers across the world has shown that an extra 10 minutes in a security queue, for example, reduces an average passenger retail spend by 30%. So anything that can be done to reduce wait times is good.

There are technological solutions that can do this. Take, for example, at the border. SITA worked with JetBlue and the U.S. Customs and Border Protection (CBP) agency on a new paperless and deviceless self-boarding process, using biometric technology at Boston’s Logan International Airport.

The aim was to reduce friction points in the airport experience, with the boarding process being one of the hardest to solve. With this new solution,
SITA, JetBlue and the CBP are eliminating manual boarding pass scanning and manual passport checks. Passengers simply look into the camera and they are on their way, boarding and border checks done in one.

These are the types of passenger experiences we can expect to see more of in the future as airlines and airports introduce new ways to improve passenger flow and self-service to better manage growing passenger numbers.

**Airports invest in seamless tech**

According to SITA’s 2017 research among airports\(^2\), the self-service technology airports are investing in most involves baggageage, with bag-drop and self-bag tagging topping the list. Off-airport check-in is also becoming more popular, with nearly half the airports saying they have either implemented, or plan to implement it, by 2020. Reducing the number of people checking in at the airport helps ease congestion; making everyone’s journey smoother.

**SITA Smart Path™**

The emergence of ‘single token travel’ is probably the most exciting development for passengers hoping to fast-track through the airport. The future of air travel – where we can truly begin to embrace it so enthusiastically. It will improve security oversight, speed-up passenger processing – whether it is during self bag drop, at a security check, at border control or aircraft boarding – facial scanning removes the need to show a passport or boarding card. It’s easy to see why airports and airlines are likely to embrace it so enthusiastically. It will improve security oversight, speed-up passenger processing and reduce the resources needed to manage the travel journey. This enhances the passengers’ experience and they will then be more inclined to enjoy the airport amenities.

**Looking to the future**

Robotics, powered by artificial intelligence, will have an important role to play. SITA has already developed two robots, one for baggage and one for check-in. Both are designed with the same objective: to improve the passenger experience.

LEO is the baggage robot. It operates a self-service bag drop. You scan your boarding pass, it prints the bag-tag, which you attach to the bag and then put the bag in LEO. That’s the last you see of it until you pick it up in your arrival airport. It simplifies the passenger journey by dealing with baggage check-in as soon as they arrive at the airport. The robot is equipped with collision avoidance technology, so won’t bump into people. It is also fully integrated into the airport’s and airlines’ systems, to ensure accuracy.

KATE is also equipped with similar technology to avoid it running into people. Its job is to use artificial intelligence based on various data sources, including flight and passenger flow information, to identify where additional check-in kiosks are required. The kiosk can even communicate with other kiosks, through the Cloud, to ensure the right number of kiosks are in the right place at the right time. The result is a significant reduction in passenger queue times at check-in.

More airports are being built around the world. However, increases in passenger numbers will outstrip all the building schedules. On top of that, passengers are demanding more control over their journey and they don’t like waiting in queues. The industry therefore needs to use technology to ease congestion and create seamless travel.
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A new digital era dawns for Manchester Airports Group

In a bid to improve airport efficiency and the passenger experience, Manchester Airports Group has launched an in-house organisation called MAG-O. Managing Director, Nolan Hough, reveals how MAG-O is taking the group on the next stage of its digital journey.

When I visit the three UK airports which make up the Manchester Airports Group (MAG) – Manchester, London Stansted and East Midlands – and observe the passengers’ behaviour, especially their increasing use of mobile devices, it is clear the expectation of digital experiences provided by the airport operators is greater than ever.

It has also become evident that passengers – who are used excellent rather just okay experiences when it comes to processes like booking a taxi or ordering food online – can also be frankly disappointed by the standard of the digital experience they are offered in the airport environment.

This is the reason behind the launch of MAG-O. MAG-O is MAG’s dedicated in-house start-up business and has been tasked with moving the airport experience into a new digital era. We have been given the go-ahead to build a fresh culture and we’re looking forward to a fresh start. We have new offices, we’re flexible, we have a can-do ethos and we’re collegiate in our way of working.

Some people have a preconception with technology being all about efficiency and automation, but that misses how digital technology can enhance a very human experience like passing through an airport. This enhancement can lead to more personalised and more human services being offered.
phase, we have already begun introducing some changes to our airport experiences that have made a real difference to the passengers.

One of our first tasks was to undertake a complete redesign and relaunch of all the airport websites in MAG, with each now delivering much faster load times and more intuitive user experiences. And because a significant majority of our website traffic is via mobile, we have taken some simple steps to make it easier for passengers in the terminals or those en route to visit the website and check live flight times.

Aside from websites and car parks, MAG-O is also focused on building an entirely new online e-commerce platform, which will allow us to provide much more personal, sophisticated retail offerings to our passengers at Manchester, London Stansted and East Midlands. Omni-channel digital experiences will add value for our passengers and, we believe, for MAG. With the right e-commerce platform in place we’ll be able to build better relationships with our customers and offer them more personalised services.

Those outside our industry are often surprised at how little airports have traditionally known about the passengers passing through them. One of MAG-O’s tasks is to change that, as we can’t engage with passengers more openly. Of course, a key consideration in this will be operating in a transparent way with our passengers and keeping them in the loop with what they permit us to share and what they don’t.

For instance, we’re working on technology that will allow passengers to order a meal at their favourite airside restaurant via their phone before they pass through security, and for the meal to be ready for them at the table when they arrive in the restaurant after security. We’re also working on having passengers’ favourite groceries available for them in the boot of their car when they return from their trip.

Car parking is another area open to personalisation. It is one of the most sophisticated data businesses in the world. For context, MAG has 160,000 car parking prices in the market at any one time and my team has 3,600 algorithms all working at once. I want to use this power to personalise the airport experience right down to passengers being able to book their favourite individual parking space in our car parks, based on where they want to be in relation to the terminal and whether they want to be on the top or bottom floor of a multi-storey car park, for example.

So it would be a mistake to only equate technology with efficiency and automation. Of course, we want to use technology to make airports more efficient, to eradicate those pain points that we have all become familiar with and ultimately to provide passengers with a much smoother and stress-free experience. But I firmly believe that in making things more efficient we can also make them more personal and appealing.

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While MAG-O is still very much in its start-up phase, we have already begun introducing some changes to our airport experiences that have made a real difference to the passengers.

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Those outside our industry are often surprised at how little airports have traditionally known about the passengers passing through them. One of MAG-O’s tasks is to change that, as we can’t offer the personalisation we’re aiming for without engaging with passengers more openly. Of course, a key consideration in this will be operating in a transparent way with our passengers and keeping them in the loop with what they permit us to share and what they don’t.

As I reflect on the start of MAG-O, I can see a huge opportunity. Despite being a fledgling business, we’ve had an amazing year. We are committed to doubling MAG-O’s revenue within five years. To achieve the improvements that we’ve targeted, we are going to have to push ourselves, be relentlessly focused on our customers, create a culture of innovation and not be afraid of failure. Perhaps most importantly, however, we must be commercial to the core.

In order to do this, we need the best people, energised by one of the best office spaces and some of the best coffee in Manchester! Our future success will be based on our ability to enthuse passengers to make their airport experience more efficient and more personalised and ensure we continue to embrace the modern demands of the on- and offline customer experience.
Providing the perfect passenger journey

With passenger traffic continuing to increase, it has never been more important for airports to use technology to measure data and communicate with their customers to deliver a seamless journey. Bob Graham, Operations Director at Birmingham Airport, reveals how the airport has embarked on a strategy to ensure today’s tech-savvy passengers get the journey they desire.
IN 2019, Birmingham Airport will celebrate its 80th anniversary, at which time it will have played host to almost 250 million people. Looking back, it’s hard to comprehend how we could have lived, worked – or flown – in a world without computers, the internet, mobile phones and, of course, social media. The luxury of flying back in the 1930s and ‘40s was only for the privileged few and I’ve no doubt that those lucky people would say that the service received nowadays is incomparable. And nor should it be compared – today’s tech-savvy passenger is taking a different type of journey, where convenience and comfort are king.

Issues such as the global terror threat, aircraft technology and climate change have not only transformed the way in which airports and airlines operate but also the way that passengers experience air travel. However, it’s the consumer that’s really driving the changes we’re now seeing. In this ‘always on’ digital age, our time-poor, information-hungry consumers want to control what, when and how they receive information and purchase goods, and thanks to the power of social media, they have the power to critique – or even destroy – a brand in seconds.

But just as airports have had to adjust to the low-cost travel boom and the threat of terrorism, they must now embrace ‘digital’ and utilise the data and insight it provides. Whilst it is true that a better understanding of passenger behaviour and their needs can guide marketing strategy, it’s just as important for building relationships and trust with customers, to deliver a seamless journey.

The challenge for airports is that, in many cases, they don’t have a direct ‘transaction’ with the customer as do airlines, tour operators and parking partners, so it’s up to us to find innovative ways to partner with, share and connect with the various stakeholders – and technology enables us to do this.

**Operational challenges**

In many ways, Birmingham Airport has been the victim of its own success, having grown by a million passengers per year for the last four following the arrival of several new airlines such as Qatar, Iberia, Wizz, BA and Jet2. The airport now sees 13 million passengers passing through its gates annually, and this additional passenger throughput has placed significant pressure on our infrastructure, particularly at peak times. As such, the airport is in the process of rolling out a number of short-, medium- and long-term projects that will centre around the customer.

Birmingham Airport’s strategy over the winter months has been concentrated on the terminal to improve the customer journey for our passengers in time for the busy summer period, which is rapidly approaching. We’ve specifically focused on ensuring the basics are in place by refurbishing the toilets, re-painting, enhancing the cleaning regime, placing new flooring in major footfall areas and providing more seating in key waiting areas, such as arrivals.

Taking feedback on board from the last two summers, we’re also focusing heavily on passenger surveying – both face-to-face in the terminal and post travel. This insight is allowing us to share real-time knowledge with partners to make quick fixes, as well as develop longer-term strategic plans.

We constantly capture and analyse operational performance by measuring queue and processing times in key customer touch points such as security and immigration, and we use this data to tighten up processes and procedures, always working with partners in the process. 

“...
Partnership is key

Partnership is vital, but being home to 140 companies – all playing an essential role in getting passengers away on time and safely when each have their own internal procedures – can be a challenge for airports. We therefore recognise that not all our passengers will have a consistent or adequate level of service 100% of the time and have thus rolled out a new customer service training programme for front line employees. This aims to ensure that required standards are understood and met, and provides an additional platform for them to share experiences so that we can explore better working practises.

Increased staffing in key customer-focused roles in 2018 means that we have more visibility; but recognising the customer’s hunger to receive consistent and regular updates via their mobile phones means ‘customer service’ is no longer just about having a physical presence. We have therefore not only employed new Customer Service Assistants in the terminal, but also a dedicated team of Customer Communication Agents, whose roles are to instantly respond to comments and queries as well as resolve issues in real time through social media channels. Located in the Airport Control Centre, they can monitor passenger sentiment through Facebook and Twitter whilst having access to operational data to report issues to ground staff and reassure customers that we are listening and reacting to their problems or concerns.

Of course, it would take an army of people to respond to every individual flight information request via social media, so in the autumn we rolled out a new system called FlightSmart, which sends automated flight updates via Twitter. The service simply requires users to tweet their flight number to ‘@flybhx’ or click on the Twitter icon via the airport’s website relating to their flight, and they are set up and ready to go. The response has been so successful that we will also be launching it via Facebook Messenger in the coming months.

Using technology isn’t the only solution in delivering great customer service though, so we’ve also recruited a new Head of Customer Experience to develop our strategy, as well as more security officers for the search area.

Physical developments to create seamless travel

Although important to our customer strategy and the overall customer experience, much of the investment mentioned above won’t be overtly noticeable by our passengers. However, those who have travelled through the airport in recent months will have noticed a significant terminal development taking shape around the north security entrance. Opened prior to the Easter holidays, the purpose of this multi-million-pound investment is to provide additional boarding card ‘A-Gates’, an improved Express Lane with increased payment kiosks, and a larger prep area with new podiums that allow passengers...
to separate their liquids and prepare for search in a more relaxed environment. The new area provides passengers with a bright and airy feel, with new flooring and lighting, as well as a new route to the central search zone, which is branded with informational signage.

For passengers with reduced mobility (PRM), we have developed a new rendezvous space and worked with the PRM provider to improve the service we deliver to those requiring assistance to and from the aircraft. Meanwhile, Birmingham Airport’s younger customers will be able to enjoy refurbished play and learning areas, known as Sky Zone. These airside locations are furnished with interactive activities to keep children entertained prior to their flight.

Following the success of newly introduced self-service bag drop desks last summer, we have created additional desks in the north check-in area. Feedback has been extremely positive as the units have reduced queue times and provide a hassle-free alternative to checking-in and dropping off luggage.

Again, thanks to technology, those arriving at the airport this summer will have access to more passport e-gates, with the installation of additional units to help reduce queues for those with biometric passports. Birmingham Airport has also been working with UK Border Force to improve the provision of information for arriving passengers to encourage preparation and guide them through the immigration process.

A new drop off car park was recently opened to allow drivers to park for 30 minutes for free, which complements the Premium Drop Off facility adjacent to the terminal. Soon, the walkway to and from this free facility will be undercover thanks to a new structure currently being erected.

Improving surface access and increasing the modal share by public transport is a high priority for most airports, and Birmingham’s on-site rail station gives those travelling by rail a seamless transition between train and aircraft. However, we anticipate that the introduction of High Speed Rail will be a game changer for future rail users. Journey times from London will reduce to 38 minutes and our two-hour catchment will grow to 45 million people – half the population of the UK.

A people mover system will connect the airport with the new Birmingham Interchange.

Longer-term, we are working with strategic regional partners to ensure future plans are aligned and integrated to give users the best possible experience.

So, to conclude, although the science of flight remains the same as years gone by, the way in which we as airports deliver a seamless journey for passengers has dramatically changed. As increasing numbers of people take to the skies, it’s our job to listen, learn, share and innovate to make sure that the wonder of air travel continues to excite our customers and that we continue to bring people together; reliably, safely and speedily.
Trends in ground traffic management technology

With forecasts predicting that passenger traffic will increase at a rate of 5% each year, airports are increasingly looking to cost-effective solutions that can help manage ground traffic movement. In an exclusive Q&A, Raghu Seelamonthula, Director of Products and Solutions for Airport Systems at Honeywell Airports Business, reveals Honeywell’s ground traffic management solution.

What’s the state of ground traffic management in airports today?
As air travel has become more popular and airports busier, managing ground traffic movement has become an increasingly complicated and exhausting task. Over the course of the last 20 years, we’ve seen the number of flights double at the busiest international airports. And the problem is only getting worse, with passenger traffic forecasted to increase at a rate of 5% each year. And yet, the number of runways and taxiways in airports has largely remained the same. Without the appropriate measures to manage ground traffic movement, aircraft can’t be rotated quickly enough, which results in more delays for passengers, unnecessary fuel consumption and an adverse environmental impact, among other consequences.

How are airports accommodating increased ground traffic?
Airports have few options. They could simply build more runways and more new airports, but this can take significant time and is obviously a costly option. Instead, many airports are turning to technology for the answer. Without expanding airport infrastructure, airports manage traffic by implementing optimised control procedures, which guarantee the disentanglement and more even distribution of traffic. My team is seeing growing opportunities for airports to incorporate advanced taxiing guidance systems, based on existing international standards and integrated technologies. Many of our customers are using solutions like our advanced surface movement guidance and control system (A-SMGCS) to improve ground traffic movement and enhance their capacity to handle aircraft.

What does the A-SMGCS technology entail, and what are the benefits?
The Honeywell technology, otherwise known as Ground Traffic Management (GTM) System, streamlines operations by increasing ground traffic capacity while keeping it safe. It comprises an integrated controller working position supported by A-SMGCS services like surveillance, control, routing and guidance, and includes an integration platform that can interface with multiple airport/air traffic management systems and an airfield lighting control system. This type of system gives airports more control and flexibility, along with the ability to incorporate clearance-based automation or full-automation which can result in more efficient planning, conflict-free routing and continuous taxiing without unnecessary stops at intersections. It also enables unambiguous guidance by way of taxiway centerline lights switched on based on assigned routes.

These capabilities help airports accommodate more aircraft capacity while ensuring safe and efficient operations without any passenger delays. Airlines also benefit from reduced fuel consumption, which reduces their environmental impact.

How does the technology work?
The GTM system works as an automatic taxiway information system that provides pilots with safe orientation and location information — even in instances of reduced visibility. The GTM system proposes an optimised and conflict-free route from gate to take-off, holding the point of designated runway in operation to air traffic control.

Once accepted by air traffic control, the system turns on green taxiway centerline lights to enable tug driver pushback and position, to position the aircraft for taxing. Once cleared for taxi, it indicates the optimal taxiing route to pilots by illuminating green taxiway center line lighting, which illuminates as the aircraft moves forward. If there are any conflicts, aircraft are separated by illuminating stop bar lights. As this happens, the system also provides full situational awareness to air traffic control for any possible conflicts, alarms or alerts, such as conformance or route deviations.

What are the latest examples of airports using this technology?
There are several, including Incheon Airport, a notable international hub for passenger and cargo transport in East Asia. In addition, Kuala Lumpur International Airport, another major Asian aviation hub, recently announced it will upgrade to a new airfield ground lighting control and monitoring system to safely and efficiently accommodate increasing aircraft traffic — a key step toward eventually running on the full GTM system. Finally, Dubai International, which saw more than 88 million passengers in 2017, has been using Honeywell’s GTM solution to reduce runway occupancy and taxi times, improve runway and taxiway safety, and ultimately lower the airport’s operational costs.

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SHOW PREVIEW

Airport show

Accelerating business and innovation for future airports

From 7-9 May 2018, the 18th edition of the world’s largest annual airport exhibition, the Airport Show, will be held at the Dubai International Convention and Exhibition Center.

THE event expects to bring together more than 300 exhibitors from over 90 countries under one roof to display their innovative and game-changing products which will be offered to key decision-makers across the Middle East, North Africa and South Asia aviation industry, which is witnessing a massive growth.

The show is supported by the International Civil Aviation Authority, Dubai Civil Aviation Authority, Dubai Aviation Engineering Projects, Dubai Airports, and dnata. The event organisers are expecting larger participation from country pavilions from China, Denmark, France, Germany, Netherlands, Portugal, Switzerland, UK and USA.

For the 2018 event, the Airport Show will welcome new co-located events, Air Traffic Control Forum and Airport Security Middle East, in addition to its other co-located events CAPA-Centre of Aviation Global Airport Leaders’ Forum and Women in Aviation.

Over US$160 billion of airport expansion and modernisation is being planned for the region — attendees of the Airport Show will get to meet high-level decision makers from airports, civil aviation authorities and airlines. The event also acts as a hub for contractors to seek current projects taking place in the region and to look at new innovations to take forward. Leading global suppliers, meanwhile, will be showcasing cutting edge technologies for every aspect of airport operations.

ATC Forum
The newly-developed ATC Forum will bring together over 1,000 air traffic control/air traffic management professionals under one roof for three days. This event will offer the air traffic management community a dedicated exhibition and conference aimed at senior-level decision-makers from air navigation service providers, civil aviation authorities, airports, airlines and the military. In addition, the ATC Forum will include a hosted buyer programme, site visits and networking opportunities.

Airport Security Middle East
This second new event will also offer a dedicated conference and exhibition, hosting top officials from regional airport security departments and facilitating over 1,000 pre-scheduled meetings for airport security exhibitors. The Airport Security exhibition will provide a platform to feature the latest technology from biometrics, scanning, facial recognition, border control, access control, CCTV and other security solutions.

Meanwhile the conference will bring together global and regional aviation, security, government, policy and business leaders and experts to share their insights and discuss potential risks, regional security projects and how to successfully implement new security strategies and technologies.

As with the ATC Forum, Airport Security Middle East will also present numerous networking opportunities.

In addition to these two new co-located events and the main exhibition, Airport
The International Airport Review team are delighted to be official Lead Media Partners at the Airport Show.

This year’s theme is ‘Accelerating business and innovation for future airports’

Come and visit our STAND 6550, for a chat!

From Left to Right: Paul Hepburn, Sam Pirani, Jonathan Russell, Andrew Holland

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WE LOOK FORWARD TO MEETING OLD AND NEW FRIENDS ALIKE

Show will also once again be featuring hosting the Global Airport Leaders’ Forum and Women In Aviation conference.

**Global Airport Leaders’ Forum**
Organised by CAPA – Centre for Aviation, the Global Airport Leaders’ Forum will bring together airport leaders from around the world to discuss key strategic issues and challenges facing airports as new technologies come online and tougher regulations create downward pressure on traditional revenue streams. The forum will explore how airports can adapt their business models, implement smart innovations and embrace collaborative partnerships with airlines to adapt and flourish in the digital age.

Panel discussions planned for the event include:
- Smart airport responses to IT and automation challenges
- Opportunities in airport retailing
- Enhancing the passenger experience
- Airline-airport partnership opportunities
- Airport privatisation and infrastructure financing
- A-CDM and passenger communications
- The future of robotics
- The rise of the aerotropolis

**Women in Aviation**
Empowering women in highly skilled roles is a major initiative of the Gulf Corporation Council governments and a key element of their economic diversification strategy. Run in partnership with key global aviation entities and leading UAE universities and vocational colleges, Women in Aviation 2018 will be held on 9 May 2018.

The conference will be attended by inspirational female aviation professionals from within the Arab world and internationally, key aviation officials from across the region, senior women managers working in aviation and aerospace across the Middle East, female students at colleges and universities providing aviation, aerospace and engineering qualifications and heads of HR at regional aviation businesses and government entities.

**Adopting smart exhibition technology**
For this year’s event, the Airport Show will be introducing Poken. The smart technology, which combines SaaS registration software, NFC-enabled Smart Badges, NFC Touchpoints, a Visit Connect lead capture app and intelligence dashboards, drives digital engagement on the show floor to maximise the experience of exhibitors and visitors.

Visit and Poken by GES touchpoints will be available on every exhibitor stand, on media walls, at feature areas and within theatres. Visitors can tap their Smart Badge against any content they are interested in and download it at a time to suit them. Exhibitors will not need to create printed marketing collateral and will generate visitor driven leads as well as their own qualified leads.

Daniyal Qureshi, Group Exhibition Director, RX Middle East commented:

“We are always eager to explore the latest innovations that enter the events industry to ultimately increase the vibrancy of our visitors’ experience. When we learnt how powerful the Visit and Poken tools were, we just couldn’t miss out on the opportunity to implement them in our planning. We feel the Smart Exhibition will not only enhance the visitor experience, but also help exhibitors increase their return on investment and give a variety of benefits to us as organisers.”

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Please visit www.theairportshow.com for more information.
A MSTERDAM Airport Schiphol is one of the world’s major airports and aims to retain that position in the future. Every day, Schiphol works in collaboration with partners to exceed the expectations of its passengers. The airport is currently undergoing a major renewal and renovation programme, called the Capital Programme – building the Schiphol of tomorrow in the spirit of its founders. They thought outside the box in a time when this expression did not even exist. With the Capital Programme, Amsterdam Airport Schiphol will not just expand its airport and passenger handling capacity, but will significantly enhance the quality of the passenger journey.

Over the next 10 years, Amsterdam Airport Schiphol will be transformed and extended by the means of several projects. These projects include a new pier, a new terminal, adaptation of the existing airside area, adjustments to the landside infrastructure and parking facilities, adjustments to the station area and new parking facilities.

**Capital Programme**

The expansion projects will be carried out under the auspices of the Capital Programme, which is able to coordinate and manage the various complex, large-scale projects in an optimal way. This is necessary, as the airport must continue to operate as it would normally during the construction and renovation work. The expansion also requires specific knowledge and experience. Amsterdam Airport Schiphol has brought this expertise together in the Capital Programme.

**Challenging environment**

With six runways, 90 gates and 2,787 hectares of airport area, Amsterdam Airport Schiphol is a very complex and challenging environment.
A hugely important European hub, the airport serves 322 worldwide destinations directly and welcomes 63.5 million passengers a year through its gates. It is densely built with very few open spaces and the existing road structure is heavily used. To avoid unsafe situations and to ensure smooth operations in this active environment, special requirements have been drawn up for all contractors working on the programme, especially when working on airside.

The new terminal
Amsterdam Airport Schiphol’s new terminal will open in 2023 and will allow 14 million more passengers to travel through the airport annually. In 2017, the airport selected the designer for the new terminal following a strict EU-tendering and assessment process with an international jury. Out of five internationally-renowned design teams Schiphol selected the design of KAAN Architects (with international consortium KL AIR) for its new terminal. The planned design puts the passenger first and will ensure a fast and smooth process. The new terminal will become part of the airport’s grand design and embraces the DNA of Amsterdam Airport Schiphol. The design process has begun, and the airport is currently working alongside KL AIR to thoroughly plan out all the important details related to the terminal such as the functions and passenger flow, to the structure and character of the building. In doing so all design choices must underpin and safeguard the achievement of our sustainability and circularity ambitions.

One terminal concept
The new terminal will form an expansion of Amsterdam Airport Schiphol’s existing terminal and will adjoin Departure Hall 1 and Arrival Hall 1. Keeping the buildings together allows Amsterdam Airport Schiphol to retain the ‘one terminal’ concept and ensure that all the facilities are under one roof. The last time Schiphol permanently expanded the terminal was in 1993, when the current Departure Halls 3 and 4 and Arrival Halls 3 and 4 were built.

The airport serves 322 worldwide destinations directly and welcomes 63.5 million passengers a year through its gates
Construction activities
Besides being busy with design works, the first physical construction activities of the Capital Programme are also becoming more visible. Ramps were demolished in 2017, a new taxi-buffer has been constructed and in one night, all the driving routes and signs were changed to make room for the construction of the new pier, and later on, the terminal. On top of that, the parking garage P2 has been demolished to make space available for construction and the basement of the terminal.

The main construction activities for 2018 are the relocation of utilities in the area where the new terminal will be built, the construction of new drop-off roads for the new terminal, and getting started with the construction of the new pier.

New roads and utilities
Looking back over the last two years and among other things the airport has been very busy with the designing of new infrastructure for roads and utilities. This is needed to make sufficient space available for the construction of the new pier and terminal. And also to ensure a road structure that is as clear and easily understood by (arriving and departing) passengers as possible.

The size and impact of this relocation of the underground utilities is the biggest in Schiphol’s history. A lot of important connections (data, air traffic control, power supply) need to be moved, whilst at the same time the airport (processes) must remain fully operational.

In parallel we have been designing our new pier building together with AECOM/Cepezed which is also completed. The preparation works for the piling (including foundation beams) ran on schedule and were completed by the end of March 2018.

Logistics hub
Amsterdam Airport Schiphol will open a logistics hub of 100,000m² in the second quarter of 2018 from where all construction activities and deliveries will be managed. This will ensure that the construction of the programme (i.e. the rerouting of the roads and utilities, the construction of the pier and terminal) will run smoothly without congesting traffic in and around the airport; safely moving equipment to the center of the airport; and transporting

BERNARDO GOGNA
has more than 25 years’ experience in international architecture and programme management, particularly with infrastructure projects both airside and landside.

As program director at New Doha International Airport in Qatar, he was involved from the beginning to the development of the airport. In addition, he has contributed to various international projects such as Istanbul New Airport, Fiumicino North Master Plan and Philadelphia International Airport.

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ABOVE: Impression of pier 3
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building materials to their destination in a safe and expedient manner. The logistics hub will be located south of the airport and will provide all the necessary space for people, machinery, vehicles and building materials. A logistic management team will be responsible for managing this process, including all the necessary tools, such as a delivery management system and a bussing service.

**Keeping things green**
The new pier and terminal will be constructed in the most sustainable way possible. The airport is aiming for the LEED (Leadership in Energy and Environmental Design) gold certificate. In the pier, for example, there is greenery – trees, flowers and plants – all over the place. However, it is green in more ways than one. Sustainability is very important to Amsterdam Airport Schiphol, which is why the airport has carefully considered various ways of reusing energy and using reusable or sustainable materials in the design of the new pier. The ceiling, for example, is made of reusable plastic, marble rubblework tiles and 5,000m$^2$ of solar panels. The toilets are flushed using rainwater, and much of the floor is made of bamboo. The new pier really is as green as it can be.

Air traffic continues to boom. Airport bottlenecks are a constant challenge.

Create more capacity by integrating and automating airport systems to cut the time aircraft spend on the ground. See how our solutions work together to enhance safety and efficiency across the airport.

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With 45 million passengers passing through its doors each year and a 14,000-acre footprint, Orlando International Airport has a particularly challenging role to ensure it is well prepared for any potential crisis. Fire Chief, John Williamson, reveals how this is achieved, through a mixture of teamwork, training and first-class equipment.
In cities and towns around the world, when lives are in danger or situations threaten general safety, the public counts on trained fire/rescue personnel to answer the call. The scenario is no different at the world’s largest and busiest airports. With 21,000 badged employees and more than 120,000 daily customers in terminal facilities and on the roadways, Orlando International Airport (MCO) functions as a bustling municipality. In fact, it would rank as one of Florida’s 15 most populous cities. And like its urban counterparts, the airport needs to be prepared for any crisis, especially those unique to the aviation industry.

At MCO, responding to a wide range of emergency situations is the responsibility of the Aircraft Rescue and Fire Fighting (ARFF) department. It takes a coordinated effort involving teamwork, tools and training to deliver a prompt and effective service.

By number, the ARFF department at Orlando International has three stations on the airfield with a total of 79 personnel, including six in administration. Our first responders work three rotating shifts on a 24-hours-on and 48-hours-off schedule. The command structure includes: Fire Chief, Deputy Chief of Operations, District Chief, Lieutenant, Engineer and Firefighter. Firefighters working at MCO are also certified as either a Florida Emergency Medical Technician (EMT) or as a Florida Paramedic.

A lot of what the ARFF department does daily closely mirrors what our colleagues at traditional structural fire departments do. However, there aren’t many municipal departments that train in aircraft suppression, understanding jet fuel or where an auxiliary power unit is located on an aircraft. Those types of specific areas of concern are unique to the airport environment. Beyond that, our daily workload still reflects the type of call common to most fire/rescue departments.

Any 911 call on airport property is answered by our internal call centre, which then dispatches ARFF personnel. While our crews expect to respond to fires and mechanical alarms, probably 85% of what we do, like most fire departments, is medically related. We run a lot of medical calls at both the landside and airside terminals and aboard aircraft arriving at the gate. In addition, as the nation’s fourth largest airport by landmass, our 14,000-acre footprint includes extensive interior and perimeter roadways where we also respond to auto...
accidents and other emergencies. So, there are a lot of similarities in that respect to the structural departments, but once you get into the ARFF and Federal Aviation Administration (FAA) requirements, it's completely different.

With nearly 1,000 flight operations a day at MCO, ARFF crews must always be prepared to handle an aircraft incident. The key to operational readiness is training, which means we're constantly training. Whenever I interview new firefighters, I tell them “if you don't like to train then you're coming to the wrong place”. With aircraft, you hope it never happens, but as long as there is the potential for an incident on airport property, preparation is essential. The challenge comes in providing relevant instruction.

In the structural world, fire-fighting personnel train for house fires and then go to actual house fires. They solidify that training with real world experience. However, in preparing for aircraft emergencies, the ARFF department doesn’t usually have that option, which is a good thing, so we focus on trying to keep the training fresh. We are always looking for new ideas and ways to avoid making it monotonous.

Through outreach and regular conference calls with other Index E airports, we exchange ideas for keeping our training methods exciting and engaging. Perhaps our most valuable tool to that end is conducting simulated training drills. FAA regulations require ARFF departments to drill at regular intervals. Live-fire training is mandated every year and full-scale disaster exercises are mandated every three years, although MCO conducts them every two.

We have several options to fulfill the live fire training. Apparatus such as a reusable, burnable aircraft fuselage can be brought to MCO so that crews can practice a variety of approaches with our fire vehicles or our crews can travel to nearby Jacksonville to train at a pit fire facility. For full-scale scenarios, we use our own training aircraft on property and we engage other members of Central Florida’s emergency response community to participate. We also invite local colleges to send students to participate as live victims of an aircraft accident.

However, having finely-tuned professionals is only part of the equation. They must also have the necessary equipment to perform at optimal levels.

“Having finely-tuned professionals is only part of the equation. They must also have the necessary equipment to perform at optimal levels.”
We set aircraft in motion
WHILE EVERYTHING ELSE IS FROZEN

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necessary equipment to perform at optimal levels. A significant recent addition to MCO’s ARFF hardware inventory is our new Tower Truck.

Responding to growing passenger demand at Orlando International Airport, the Greater Orlando Aviation Authority has embarked on a $3.5 billion capital improvement plan. One of the main components of the project is the South Airport Automated People Mover (APM) Complex/Intermodal Terminal Facility (ITF), which is linked to the main terminal by a 1.5-mile partially-elevated APM guideway. To access certain areas of the track, we needed a Tower Truck and the vehicle also gives us the flexibility to make entry into larger aircraft such as the double-deck Airbus A380, while adding the capability to perform firefighting with a hose line and a master stream device mounted underneath the bucket of the aerial device.

We anticipate the truck will enter service sometime in April 2018.

Perhaps the most impressive vehicle we have is the ARFF Unit. It is unique in that it can pump and roll. Most fire department vehicles, if they carry water, have to park in order to divert power from the transmission to the pump. But our vehicle is designed to pump while moving. Turrets on the roof and bumper are controlled by joysticks inside the cab. We’re able to do our exterior firefighting sitting in the driver’s seat or the seat next to it.

An ARFF Unit also carries about 450 gallons of foam and 3,000 gallons of water. Regular fire trucks have an average of 750 gallons of water and rely on fire hydrants to provide an ample supply of water. We don’t have the luxury of fire hydrants on the runways.

Our specialised fleet also includes a fire engine; a squad; a transport capable rescue vehicle which gives us the option to transport a patient if necessary. We also maintain two trailers outfitted with medical supplies; and due to an extensive network of natural and manmade wetlands, we also have a boat.

The synchronisation of manpower and horsepower enables the ARFF department to positively contribute to MCO’s goal of providing world-class customer service. With a record-breaking 45 million annual passengers, MCO is the busiest airport in the state of Florida. As the number of guests continues to rise, we expect to touch a great many lives into the future.

In just the past four years, emergency call volume has increased from 3,400 to 5,200 per year. Therefore, it is incumbent upon our department to continue to evolve training methods, integrate the latest equipment and tactics and add new facilities as needed to meet increasing demand. Our job is to save lives, protect property and represent one of the world’s finest airports. It is a responsibility we all take great pride in.
Designing an airport for everyone
AIRPORTS are busy, complicated environments, which makes their design a challenging task. In that sort of complex environment, anything outside of the ‘norm’ is troublesome – if you think of an airport as a system, then you might easily feel that any passengers who need additional help and support are a problem; an expense. Regulations ensure their needs are catered for, but this is often seen as an inconvenience for operational planning, and an increase in the cost burden. However, an approach that starts by developing in-depth insights into everyone’s needs creates a better designed airport that provides a positive experience for everyone, including passengers with reduced mobility (PRMs). Hermes, the operator of Larnaca Airport in Cyprus, has adopted such an approach that begins with people and their needs, and as a result have created an environment that is inclusive and facilitates a positive travel experience for all.

Standard designs are often based around averages, or in regulated environments simply to meet those minimum standards that present a low threshold and a straightforward option. However, this will not create a satisfactory or positive experience for many passengers. Regulations tend to play catch-up and usually set a low-bar; they meet some current needs but not future requirements. ‘Average’ people don’t really exist – we are all individuals, and by using an ‘average’ as the basis for a design the needs of those people who fall outside the ‘norm’ are not met. This situation is especially problematic for PRMs. By taking a more inclusive approach and designing an airport that caters to the needs of PRMs, the result will be a far superior design that promotes a more favourable experience for all passengers.

PRMs are not a small minority, as architect Peter Farmer of Chapman Taylor explains: “On a worldwide scale, around 18% of adults have some kind of disability. Most of these are not visible by simple observation. Disability in children is growing rapidly; five million children suffer from learning disabilities and syndromes like autism are rapidly increasing. There are growing numbers of people with mental disabilities too, which may result in reduced cognition and/or reduced perceptions. The community of disabled persons and persons with reduced mobility is growing every year due to the aging of the ‘baby boomers’.”

We should also understand that some passengers may face temporary mobility issues, such as those who have had an injury or surgery.
challenges when travelling through an airport. So, if you consider that we all have different mobility issues for a wide range of reasons – some permanent, some temporary – then it becomes obvious that by catering for reduced abilities whatever their cause or duration, will make it easier and better for everyone.

The first aim of any airport operator should be to create a positive experience for passengers as they arrive, pass through and depart. A positive experience not only increases passenger satisfaction, but also directly leads to business benefits – including increased profitability. To achieve this, operators and their architects and designers should adopt a ‘social model’.

This means that designers should be designing for inclusivity and not designing for disability. Good airport experiences for persons with a disability and their families help create a positive reputation for airports, thus promoting loyalty and return trips. Airports can therefore draw in passengers who may otherwise not wish to travel.

For Hermes, that has meant reaching out to passengers even before they leave home. The airport operator’s ‘I Can Fly’ Programme includes a Travel Resource Toolkit that aims to make air travel more accessible for individuals and families who are affected by autism. It comprises both a story book and a checklist for when at the airport. This means the positive experience can start at home, which then reduces the levels of stress during the journey.

At the car park there are priority parking pay machines for PRMs with lower height, and in the terminal, there is priority seating for PRMs in both the arrivals corridors and the baggage reclaim area. Immigration desks have also been specially designed at a lower height, for better communication between the officer and the PRM. An integrated approach between architecture, facilities and services leads to a better airport, the initiation of which should come from developing a strategy for the kind of experience the airport wants everyone to have. The foundation for this is user research, as David Watts of CCD Design and Ergonomics explains: "There are a range of techniques that can build a comprehensive picture – research methodologies deeply rooted in psychology and the science of the brain, questionnaires and workshops to uncover challenges and identify passenger needs throughout their time in the airport. Most importantly, talking to and listening to people with extended needs can build empathy and understanding." Where possible, further testing should be undertaken to refine and improve as new elements are developed.

At Larnaca Airport, this understanding has seen an enhanced focus on the safety of people with a visual impairment and other sensitive groups like the elderly and children, by putting high visibility stickers on all glass terminal doors – perhaps something Apple should have done at its new headquarters where there have been numerous reports of injuries due to people walking into glass panels. There is also a Blind Path to guide those with a visual impairment, ranging from the PRM calling points through to the special assistance desk for disabled persons and PRMs. A new Guardian Tactile System has been developed by CCD, which will ensure that navigating through the airport can be more easily achieved by everyone.
Whilst the structure and fitout of an airport are key to accessibility, so too are the people that work there. Staff have all undertaken a disability and equality awareness training scheme, equipping them with the ability to empathise with all passengers as well as learn practical things including experiential exercises and lifting techniques. For completely immobile passengers (WCHC) and overweight persons who are unable to move to and from their aircraft seat unaided, the airport has installed an Eagle Passenger Lifter, which eliminates the risks of manual handling.

“Research should also provide insights into the different challenges at different stages of the ‘airport journey,’” says Watts. Whether it be check-in, security, finding food and beverages or retail, every element can induce a degree of stress in a time-pressured environment. However, by considering inclusion as a whole, Chapman Taylor is working on designs that take up no more space than the traditional arrangement, but which are more socially and physically inclusive. There is a capital cost, but this is proving to be far smaller than originally thought. Furthermore, as demand for equipment increases, it is – and will continue to become – more attractive to industry to provide better products.

In Larnaca, for example, toilet facilities have been carefully considered, and the airport has created unisex toilets with an emergency string on each wall. The airport has also created a branded area, Changing Place®, where carers of adults with spinal injuries/profound and multiple learning disorders/etc. can use the facilities to change the clothes and/or incontinence pads of a disabled person on a changing bench with the use of a hoist.

This avoids the unacceptable situation of being forced to place the disabled person on the floor, which is undignified, unhygienic and puts the carer at risk of injury.

Moral and economic demands on airports and designers require us to challenge the attitudes of standard and minimum ratio-driven regulatory provisions and the quality of design. Starting with the question ‘what do all our passengers expect and need from us?’ places us in a much stronger position to deliver accessibility throughout the entirety of our structured environment, and allows every citizen to move around freely, with safety and autonomy, in all areas.

Globally, the community of disabled persons represents a ‘disposable income’ of around $220 billion, which is spent on holidays, travelling, cars, technology, etc. This would be a very large market to ignore. The world is experiencing a seismic shift of social awareness and a resulting desire and call for change. The recent high-profile gender equality movements are examples of a growing demand for fairness and inclusivity in relation to gender, race, economic group, class and physical ability. This issue will be one of the most significant that designers will have to grapple with over the next 10 years. It will, however, be an extremely positive and rewarding one that will lead to improved and happier public spaces for everyone.

In Cyprus, we have taken some bold steps, made some significant investments and the result is a much better environment for all. 🛋️

“ A positive experience not only increases passenger satisfaction, but also directly leads to business benefits – including increased profitability ”

LEFT: Wheelchair charging points are becoming more commonplace in the airport

ABOVE: Larnaca Airport

POWER CHARGING STATION FOR ELECTRIC POWERED WHEELCHAIRS

INTERNATIONAL AIRPORT REVIEW | Volume 22, Issue 02
Maximising airport capacity through forecasting

On 1 March 2018, International Airport Review hosted a webinar in association with Leidos, which explored how Operational Terminal Prediction (OTP) technology provides accurate planning, scheduling, forecasting and capacity management, helping airports to become more efficient and deliver a high-quality passenger experience. Jana Skornicka, Sales Director at Leidos and speaker of the webinar – answers some key questions that were raised.

What measures are taken to ensure a smooth implementation of OTP and which data sources are needed?

The OTP implementation is a collaborative effort between all airport stakeholders. Stakeholders are involved in the requirements definition/confirmation, design approval, training, testing and ongoing evaluation of OTP. Leidos provides ongoing support for the system from a technical and system analysis perspective for the duration of the project.

For the initial implementation of OTP, the usage of schedules and historical data is recommended to ensure timely setup and go-live. The solution’s primary components are tactical forecasting, resource planning and on-the-day optimisation. Taking into account the knowledge gained while delivering the solution to various airports, Leidos recommends operational data from the AODB or the usage of FlightStats data as the source of operations data.

Additional data sources such as airline booking numbers and real-time queuing data may be included as well to further enhance the on-the-day prediction.

You mentioned that OTP technology can be tailored to different needs – what are the key benefits of this?

Faced with daily challenges of limited capacity and legacy technology, airports must begin more effectively utilising current airport infrastructure to meet passenger demands and improve the passenger experience. Airports around the world are taking advantage of OTP to improve situational awareness and enable proactive decision making. Immediate benefits include but are not limited to:

- Reduced congestion at common passenger pinch points such as check-in, security and immigration areas
- Continuous improvement in operations as demand changes based on metrics delivered
- Ability to make process adjustments to accommodate demands based on passenger flow data
- Access to real-time data, ensuring better passenger communications through public messaging displays
- Data on passenger volume supports management of maintenance and government agency contracts.

Which major airports are using OTP technology and what feedback has been received?

The OTP technology is implemented at airports in New York (JFK T4), Los Angeles (LAX), Amsterdam (AMS), Vienna (VIE), Keflavik (KEF) and is soon to be implemented in Doha (DOH), and is part of a scenario planning suite that supports over 50 airports worldwide. By introducing OTP, the airport will be enabled to understand the operational fluctuations which are key to delivering the best service to passengers while ensuring smooth and more efficient processes.

Feedback has been positive. Daryl Jameson, JFK T4 Vice President of IT & Baggage Systems, noted: “For Terminal 4 to continually increase passenger satisfaction and invest in improved facilities, we have to better utilise our resources and simultaneously reduce operating costs. By proactively managing passenger journeys, rather than reacting to situations as they arise, BEONTRA Operational Terminal Prediction will allow us to combine and take account of data being provided by different stakeholders to manage our terminal operations more efficiently.”

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➢ Safety

➢ PLUS, articles on big data, how Munich Airport has harnessed robotic technology, Sheremetyevo International Airport on gearing up for the 2018 World Cup and the use of artificial intelligence in ATC/ATM operations

Published: June 2018

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REGULATIONS concerning airside bird control differ across the world in terms of what is mandatory and the extent to which practices are then governed by authorities. The International Civil Aviation Authority (ICAO), for example, has published a set of Standards and Recommended Practices (SARPs) and although not binding, the SARPs recommend that member countries establish a national procedure for aircraft and airport personnel to record birdstrikes. Understanding the importance and the implications of birdstrikes and wildlife hazards remains a major challenge for all airports no matter their size, for ground staff, operations teams and management.

Minimising risk of incidents
To minimise the risk of wildlife-related incidents at airports, operators should be aware of the conditions attracting birds and other animals at their airports. Active wildlife management and bird control can be successfully implemented with dedicated tactics. However, due to the highly adaptable nature of most wildlife hazards, the world’s increasingly busy airports face a growing threat of birdstrikes and wildlife hazards, partly due to expanding urban environments and bird populations, but also due to the global growth of airport traffic. Lee Pannett, Director at the Scarecrow Group, reveals how bio-acoustic technology can successfully mitigate the issue.
operate a zone of ‘bird or wildlife attracting sites’ (traditionally 13km), with particular attention to the approach and departure corridors as surrounding land use undoubtedly impacts airfield safety.

Global challenges of wildlife control
Across the world we have seen airports facing all manner of local challenges. In one busy city centre international airport, residents from the nearby slums dumped their rubbish over the perimeter fence into the airfield as they knew operators would take the rubbish away. In more rural locations airports would typically look to work with local land owners and farmers where possible, as crop growth could serve to be a major attractant.

To identify the wildlife and birds that pose a threat to aviation safety, an ecological study of the airport and surrounding areas can be conducted, providing recommendations for mitigating wildlife attractants.

Airports need to have fully-trained bird control personnel in order to implement a comprehensive Wildlife Hazard Management Plan (WHMP); personnel who can log activity and analyse data to help establish daily/seasonal movement patterns and plan accordingly. It is easier to disperse birds arriving than once they have settled. On a global basis, considering what we have seen from airport visits, the collection of data and the way it is recorded varies incredibly between operators.

Taking control of the problem through bio-acoustic technology
There are many options open to airports to tackle the issue of airside bird activity – and worldwide practices vary enormously. Acoustics is one such option, and in some locations the broadcast of ‘loud noises/bangs’ are utilised – typically these will have a short-term success when compared to the use of bio-acoustics, which is the application of science with nature.

For over 40 years, bio-acoustic technology has helped airports disperse and control bird populations. Broadcasting the distress calls of birds to deter them from airfields and surrounding areas has proven successful, and the technology can be effectively integrated with other control methods to reduce the risk of an incident. Distress calls are the natural, biological sounds birds make to warn each other of danger, as it is only broadcast when a bird has been caught by a predator. Using distress calls means you are talking to the birds in their own language. For the
birds hearing their species-specific sound, it provides a call to action because of predator activity. As in the real world, predators move, so providing the calls are not broadcast too frequently from the exact same spot (i.e. they are best to broadcast from a vehicle), then the use of bio-acoustics as a controlled dispersal method can have long-term success. Different species of birds react to distress calls in different ways. For example, gulls will hear the call, fly to the source to try and identify the threat, but when unable to do so (they are looking for a predator) they become confused, perceive the area to be hostile, and fly away; whereas starlings disperse straight away.

Not all birds have a distress call. For this reason it is important that airports have a toolbox of methods to disperse birds, along with fully-trained operators who understand how different species will react to different methods and calls.

Jan Kadlec, Head of Airfield Operations at Vaclav Havel Airport Prague, regularly uses bio-acoustics along with falconry, dogs, rifles, pyrotechnics, lasers and lures, but easily places bio-acoustics as one of the airport’s preferred methods.

In Christchurch, New Zealand, Ian Faulkner, Manager of Fire and Airfield Operations at Christchurch International Airport states that the Scarecrow system offers a wide range of bird calls that covers all their needs, so is the main dispersal method used there.

The WHMP includes the process of identifying the problem, the causes, the attractants, actions to take for tackling the birds, establishing control policies and then monitoring the standards. This is an ongoing cycle, so it is important that the bird control operators, through wildlife management courses, are fully aware of the different behaviours and environmental issues that can bring wildlife to an airfield and how to implement new processes to minimise their risk of birdstrike incidents.

Wildlife hazard management training courses should be attended regularly and can vary widely in content depending on airport’s needs. A wide-ranging training programme would typically be tailored to cater specifically for the airport by looking at the local habitat, understanding the airport ecosystems and any local and migratory patterns. For airports that are less advanced in their wildlife control procedures, species identification together with harassment techniques also prove effective.

Having a detailed WHMP sees airport operators aiming at the common goals of improved safety and limited disruption to operations due to birdstrike incidents.

We travel to many different locations across the world, visiting new potential markets and face the different types of issues, challenges and levels of expertise that airports may have in terms of wildlife/bird control. Where required, we may look to work closely with specialist companies, who are able to provide a more ‘hands on’ involvement on matters like ecology, bio-diversity and habitat, as well as meeting any wider training needs.

No matter what proactive steps an airport may take to mitigate wildlife presence through various environmental measures, it is inevitable that from time to time there will still be birds present at an airfield; as such there is always likely to be a need for airport operators to employ active wildlife control/dispersal. However, bio-acoustics are very effective and well established as a dispersal technique and Scarecrow works with consultants all over the world to assist airports with implementation of the most appropriate technique dependent on the circumstances confronted at the airport.

At Scarecrow we always advocate that trained, knowledgeable and well-equipped personnel should have a mix of options at their disposal – there is no one silver bullet solution that successfully tackles all species.

"At Scarecrow we always advocate that trained, knowledgeable and well-equipped personnel should have a mix of options at their disposal – there is no one silver bullet solution that successfully tackles all species."
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Date: 7-9 May
Location: Dubai, UAE
Web: www.theairportshow.com

**June**

**ACI World Annual Congress & 28th ACI EUROPE Annual Congress, General Assembly & Exhibition**
Date: 18-20 June
Location: Brussels, Belgium

**ORAT World Summit 2018**
Date: 26-29 June
Location: London, UK

**September**

**International Airport GSE Expo**
Date: 2-4 October
Location: Las Vegas, USA

**inter airport China 2018**
Date: 5-7 September
Location: Beijing, China

**World Routes 2018**
Date: 15-18 September
Location: Guangzhou, China

**December**

**Airport IT & Security 2018**
Amsterdam, 4-5 December

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With global air traffic continuing to rise and airport capacity already at a premium, it's imperative for the airport industry to utilise technology to help make operations more effectual. The baggage handling sector has seen a huge increase in automation and the result is a more efficient service that can transform the passenger experience.
All about preparation

In just a few months, the world’s biggest greenfield airport development, Istanbul New Airport, will open its gates. With passenger satisfaction top of the agenda, İGA Airport Construction had to ensure the baggage handling system was up-to-scratch. CEO, Yusuf Akcayoğlu, reveals how they made it happen.
ON 29 OCTOBER 2018, Istanbul New Airport (INA) will officially be opened. Offering flights to more than 350 destinations, INA will have an initial capacity of 90 million passengers, which will expand up to 200 million passengers once all phases are completed. With its three runways, INA will initially host 2,000 flights per day for around 100 airlines. That equates to 30,000 pieces of luggage per hour.

To keep travellers happy, the baggage handling system is crucial for the airport; it can make a difference in an airport’s ability to attract or keep a major airline. Completed in December 2017, it was a milestone in the construction of Istanbul New Airport. “The baggage system will ensure an uninterrupted passenger experience by bringing down the waiting period for baggage items to a minimum level,” says Yusuf Akçayoğlu, CEO of IGA Airports Construction (a joint venture group of five companies – Cengiz-MAPA-Limak-Kolin-Kalyon – which has constructed the €10.2 billion project and will operate INA for 25 years).

It took just 42 months to build INA, and the baggage handling system emerged in record time, too. Design, production, delivery, and assembly of the system was completed in a period of just 24 months – a no mean feat considering a system has never been prepared in such a short space of time. A total of 3,300 tonnes of steel were used, and 650km of cable laid to establish a high-tech system that covers the distance of a marathon: 42km. It is the largest single-phase system of its kind.

Vanderlande Industries, a global leader in the baggage-handling market, is responsible for supplying the entire baggage-handling system at Istanbul New Airport. The systems and integrated solutions of the Netherlands-based company operate at about 600 airports worldwide, including many of the top 20 hubs by passenger volume.

Throughout the airport, technical innovations and state-of-the-art technologies are used to enhance the passenger experience and reduce stress levels. Baggage sorting and stocking will be carried out by smart devices operating with 170 special microprocessors, which allow the handling of 30,000 baggage items per hour. Automated processes and the integration of robot technology are a hallmark of the system. Some 12,000 independent carriers will transport the luggage from one location to the next.

“A automated processes and the integration of robot technology are a hallmark of the system,” says Akçayoğlu comments: “Thanks to our baggage system, we will outperform many airports around the world.”

Naturally, security is of the utmost importance. To detect explosives, the luggage system has 24 detection systems provided by L3 SDS Inc. from the USA. Security and inspection equipment at Istanbul New Airport comes from the Far East, made by China-based Nuctech Company Limited. The high-tech enterprise, derived from Tsinghua University, was only founded in 1997 and has become a leading player in the security and inspection industry in a short time. Under a contract signed by the two sides, INA will use Nuctech-made equipment and systems to inspect carry-on baggage. Also, IGA has set up a private security company within the parent.
company, composed of a group of security officers who are experts especially in the field of civil aviation. IGA Security Services will hire 3,500 security officers to serve the airport.

As air traffic grows and creates new routes, airports need to adapt to the requirements and become smarter and more proactive to the changing aviation dynamics and passenger needs. For passengers using Istanbul New Airport, one central improvement will be the provision of 80 self-service bag-drop machines. These will enable travellers to check in their luggage quickly and easily. The system is simple: having checked in online or at the airport kiosk, passengers will be able to weigh their bags and use their boarding pass at the self-service bag-tag kiosk located in the airport terminal to generate a label for their bag. The passengers will then be directed to the designated bag-drop zone, where they can transfer the luggage themselves.

Furthermore, the terminal building is equipped with 13 check-in islands and 468 points where passengers can check in their luggage. With 1.4 million square meters, it is the world’s largest terminal complex under one roof. Another advantage is the enormous size of the baggage storage system. "It has a capacity of 22,000 baggage items, which means that passengers who arrive at the airport early will be able to hand in their luggage whenever they wish," reveals Akcayoğlu.

Moreover, in the case of a delay, INA will not have any problems with space to store the baggage. The baggage items will be put away on shelves by 48 early-baggage-storing robots. The system also includes 28 (10 domestic, 18 international) incoming passenger baggage-reclaim carousels. "Eight of these carousels have the capacity to handle wide-body aircraft (Code F)," adds Akcayoğlu. "We also have 48 baggage-sorting carousels, which will sort departing baggage to each flight."

INA is thus ready for action. To identify possible shortcomings and to ensure functioning without failures, a process called ORAT (Operational Readiness and Airport Transfer) has started. For the airport to be ready on an operational level, all systems must be in order, tested, and capable of working together. This includes the closing of Atatürk Airport and opening of INA, which will result in the world’s largest airport transfer to date. For the first time in history, an airport of 70 million passengers will be transferred in its entirety to a new facility 45km away.

In one trial, 3,000 passengers will arrive at the airport as if they were ready to go on a trip. They will pass through X-ray scanners and the entire information flow will be available, including matching passengers with their luggage and transfers to the aircraft. In another trial, a group will test landing from abroad and taking a domestic flight. At this stage, 30,000 pieces of luggage will circulate within the system. At one point, nearly 10,000 passengers will be involved.

Further tests include contingencies and aircrafts, adverse weather conditions, accidents and fire incidents. A total of 200 scenarios are in the making so that all stakeholders will become familiar with the airport. INA is relying on excellent planning and is very well prepared.
IN JANUARY 2018, 10 stations for fully-automated baggage check-in became operational in Hamburg Airport’s Terminal 1. What makes them special is that these ‘self bag drop’ kiosks are not only available for a specific airport but are technologically equipped to provide the service to all airlines. After a successful project launch with easyJet, Air France and KLM, Lufthansa passengers can also now use the kiosks for convenient automatic baggage check-in. Other companies have already expressed interest, too.

Following the launch, it didn’t take long before the numerous advantages became apparent for passengers and airlines alike. Reflecting on the opening weeks of the system, Director of Aviation at Hamburg, Johannes Scharnbert, commented: “The queues at traditional check-in counters became shorter and passengers were no longer governed by the counter opening times. They had more time to stroll, shop and visit the restaurants. The easing of the burden at the counters for participating airlines is already being felt.”

The result is a consistent levelling out of check-in, with demand peaks at the subsequent security checkpoint avoided too.

Mirjam Froehlich, Project Leader of the Self Bag Drop at Hamburg Airport, reveals how automatic bag drops are helping both airlines and passengers to achieve a comfortable start to their journeys and how the initiative has helped in launching a new chapter in air travel.
No more constraints
Flight operations at Hamburg Airport take place between 6am and 11pm. The self bag drop kiosks are in operation between 4am and 9pm so passengers arriving a long time before the counters normally open can now check their bags in regardless of the time. This eliminates the waiting time for passengers arriving before their check-in counter opens. Without luggage, the passenger can pass through the security checkpoint early and spend their time before departure relaxing in the shops, lounges, bars and restaurants. Self bag drop can also take over the functionality of late-night advance check-in.

Fully automated baggage check-in means reduced costs for the airlines. It also means the airlines don’t have to acquire kiosk terminals themselves, and even the maintenance becomes the airport’s responsibility. So the airlines are only paying for the services used by their passengers. easyJet has been using the new system exclusively at Hamburg since the first baggage kiosks became operational. The other airlines also accept baggage at their counters. But the airport offers personal support from well-trained staff at the kiosks, too. A helping hand is always available for a passenger having difficulty checking in their bags.

Fears quickly allayed
Passenger feedback has been positive. As was to be expected, there were initial fears and some reservations when it came to using the kiosks, but looking back people were also uncertain the first time they encountered ticket machines and ATMs. Those fears dissipated as familiarity grew; however, as anyone using the automated baggage check-in quickly realised how easy the system is to operate. It is straightforward and self-explanatory. Self bag drop is part of the future of aviation and is becoming an increasingly standard component in more relaxed travel.

‘User-friendly and with the maximum possible comfort for passengers and airlines whilst fulfilling the highest security standards’: these were the most important technical requirements imposed on the system’s manufacturer. Hamburg Airport chose a leading IT service provider, which also offers automated passenger handling solutions: Materna GmbH, under the Materna IPS (Integrated Passenger Services) brand. With more than 1,900 employees around the world, this was a perfect choice for partnership.

The specifications for ‘self bag drop’ included demanding requirements in terms of design as well as technology. The solution adopted fits well with the architecture and atmosphere of the terminal. Materna’s Danish partner, Marcus Pedersen, can take the credit.

User guide
The user guide for the automatic baggage check-in is simple. First, the user selects the airline on the screen and then scans their boarding pass. The next step is to answer security questions about the contents of the baggage. Then the bag is placed within a marked area on the belt before the kiosk prints a baggage tag with the barcode to be affixed to the baggage. This must be confirmed on the screen, and finally the passenger takes the baggage receipt.

Baggage cannot be transported onward on the conveyor belt until it is correctly labelled. A scanner can immediately identify any errors or misuse of the kiosk and the glass doors only open when an item of baggage has been identified as safe. As soon as the baggage reaches the conveyor belt, it follows the standard route behind the scenes through the airport, eventually reaching the aircraft, ready for loading.

Growing capacity
For someone familiar with the kiosk, checking in a bag only takes around 60 seconds. The 10 kiosks can therefore process around 600 bags per hour. During the course of a year, the system can process more than two million items of baggage and more kiosks can be added as needed. A key advantage of the system is that it saves space, which is especially important for an inner urban airport such as Hamburg, where space for expansion is limited.

Experience in Hamburg to date leaves no doubt that automated baggage check-in is the right solution for the future. Passenger feedback has been overwhelmingly positive — regarding both the kiosks and the on-site service personnel. Current statistics show system availability of 98.9% and the few faults are primarily the result of minor user error.

A pioneering airport
Hamburg Airport has taken a pioneering role in the deployment of self-service systems in Germany. The first self bag drop kiosks were introduced here three years ago. The new solution, however, adds features such as baggage classification. The kiosks automatically identify things that cannot be transported using the system. The passenger is...
Baggage cannot be transported onward on the conveyor belt until it’s correctly labelled then informed via the display that the item needs to be checked as oversized baggage. This applies, for example, to prams and strollers, even folded up, as well as to trekking rucksacks with straps that could potentially block the system.

Checked items are also automatically photographed. In the event of damage or loss, for example, this makes it easier for the passenger to prove that the baggage was in good condition when it was checked in. The self bag drop system is based on the international CUSS (Common Use Self-Service) standard which allows airlines to deploy their own applications on self bag drop equipment around the world without having to redevelop or adapt each time.

**Innovation behind the scenes**

When it comes to baggage, Hamburg Airport does not just think about its passengers and airlines; the needs of the airport staff are also considered. Baggage loading personnel, who transport passenger bags every day, have been reaping the benefits of another innovation for four years now. An innovative concept for promoting occupational health aids in the healing process for any existing complaints, whilst helping prevent strain-related wear, injury and illness. The concept involves a combination of occupational safety, health support and therapy.

Christian Noack, Head of Ground Handling Services, explains: “Our staff are, in the most literal sense, the spine of the airport — as long as the spine remains strong. So we worked together with the Lifebonus health specialists and a team made up of the works doctor, sport scientists, strength training experts, industrial designers and specialist physicians, to develop a training programme that employees can complete in the workplace.” As well as strength training, the programme also includes a mock-up which simulates the work of a baggage loader, so that the correct method for carrying out strenuous activities can be practiced and become automatic. Employees from other areas of ground handling also take part in the programme, which is tailored to their daily work.

For a baggage loader, moving up to 1,500 suitcases in a single shift is not out of the ordinary – indeed sometimes it’s many more. “If we assume a weight of 15kg per item, then we have a total of 22 tonnes of baggage being lifted, pushed, and carried each day by one person,” says Noack.

The job-specific training, during working hours and in work clothes, quickly proved its worth and the number of sick days taken has significantly declined.

Before taking part in the training programme, employees must undergo a thorough medical check-up which involves a cardiovascular examination including ECG, a blood test and a discussion about any possible existing or previous conditions. They may only undertake training when the tests and examinations show there is no cause for concern and no impediment to taking part. Should there be any doubt or any indication of illness or injury, a consultation with a specialist will be recommended.

As a result of this project, the German Airports Association (ADV) has described Hamburg Airport as “a pioneer in innovative projects to reduce musculo-skeletal conditions”. And the airport has received several awards for its exemplary occupational health and safety, including an award from the European Aviation Group of Occupational Safety and Health (EAGOSH).
Airport of the future

Being voted the best airport in the Middle East in 2017 for the second year running, by Airports Council International (ACI), confirms the status that Abu Dhabi International Airport (AUH) continues to withhold as a leading airport hub for the region. And with the buzz around the nearing completion of the construction of its iconic new Midfield Terminal, the airport is entering a period of expansion, innovation and excitement about the future.

AIRPORT Service Quality (ASQ) is the world-renowned and globally-established benchmarking program which measures passengers’ satisfaction while travelling through an airport. The awards recognise airports around the globe that demonstrate a commitment to providing an excellent customer experience and are given based on passenger surveys that are supervised by the ACI.

Travellers give their views on a group of services offered to them, as well as rating their satisfaction with these services provided by the airport. The areas reviewed include airport access, check-in, security screening, stores, and restaurants, amongst other services. Awards are presented to those airports whose customers have rated them the highest over the course of the year. AUH’s much-coveted ASQ award will be officially handed over in a ceremony to be held during the inaugural ACI Customer Excellence Global Summit, hosted by Halifax International Airport Authority.

“The appreciation from our passengers who voted for these awards, is heartening,” said Acting Chief Executive Officer of Abu Dhabi Airports, Abdul Majeed Al Khoori. “This recognition is thanks to the hard work of our team at Abu Dhabi International Airport and our stakeholders, and reflects the team spirit of those working in the airport’s terminals to make sure that the passenger experience is as exceptional as possible.”

AUH focuses on the passenger experience, and over the last few years has worked on projects such as ‘Abu Dhabi DNA’, showcasing the Emirate’s rich culture and heritage, and the introduction of pioneering new technologies, like Smart Travel.

Smart Travel has made AUH one of the quickest airports in the region to travel through. Implemented in conjunction with the Ministry of Interior and the Police, it allows passengers to check-in and move through immigration and security within 15 minutes, interacting only with cutting-edge technology such as automated passport control gates and smart boarding gates.

Smart Travel has significantly enhanced the passenger experience by decreasing processing times within the airport by up to 70%, meaning more time for travellers to enjoy the airport’s retail, leisure and food and beverage facilities.

And for those passengers who’d like to have an even easier way to travel from A to B, the exclusive VIP Terminal offers travellers the option of having everything done for them.

The facility is attached to the main airport and is available for all passengers. It has its own immigration, police and baggage handling facilities so that passengers can enjoy the utmost privacy and convenience while relaxing in a luxurious environment.

From the minute they arrive, travel documents are taken away to be processed while guests refresh and unwind in a private mailis, a luxurious home away from home.

Offering a fusion of Arabian and European design, equipped with state-of-the-art audio visual systems, Wi-Fi zones and a variety of culinary offerings and other facilities, the VIP Terminal is the perfect enhancement to any journey. Passengers are whisked away to their aircraft door in a BMW or Rolls-Royce shortly before flight departure or collected in style upon their arrival.

The unparalleled levels of comfort and services provided by the VIP Terminal are in line with Abu Dhabi Airports Company’s commitment to delivering services of the highest standards, to all passenger segments, ultimately enhancing their airport experience, which enabled AUH to win the ASQ awards.

“These ASQ awards are testament to the hard work we do to ensure the passengers have a warm and memorable experience in all our terminals,” said Al Khoori. “We constantly strive to move closer towards our vision of being the world’s leading airports group, and this international recognition is the best vote of confidence in our services we could ask for. We are always developing and enhancing our offering to meet the expectations of our unique passenger demographic, and to reflect the proud image of the Emirate of Abu Dhabi.”
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