Published biweekly – available by annual subscription only – www.mombergerairport.info
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for inter airport Europe from Momberger Airport Information #1159 / December 25, 2021

Falcone Borsellino International Airport (PMO) in Palermo, Italy is set to become the first airport globally to trial a new emissions management tool from SITA. SITA Emissions Manager leverages the technology company's existing airport management solution to enable PMO to monitor selected scope 3 emissions over a four-month period. This will include analysing landing and take-off cycles which account for 97% of local annual emissions at an airport on average. The initiative will integrate various emission data sets to make informed decisions at the airport to drive greater efficiency in apron operations and reduce greenhouse gas emissions. The trial will also assess how useful the emissions manager could be in optimizing other sources of scope 3 emissions at the airport, such as aircraft turnaround and ground vehicles. This partnership comes amid Palermo Airport's participation in ACI's Airport Carbon Accreditation programme and its adoption of renewable energy which has reduced its carbon emissions from 0.71 kg of CO_2 per passenger to 0.67 kg between 2018 and 2019.

Aachen, Germany-based INFORM GmbH has said that it supports the Aicher Group's mobility service for passengers with reduced mobility (PRM) at Munich Airport (MUC). With task assignments on the day of operation, the GroundStar RealTime software solution ensures a smooth process in the daily coordination of all PRM-related tasks. The Aicher Group executes approximately 1,600 services daily at MUC Airport. For example, the employees take wheelchair passengers to their departure gate, pick them up from the aircraft upon arrival, and accompany them to the baggage belt, car, or hotel. These services require efficient coordination not only of the 250 employees, but also of the associated 91 vehicles such as minibuses, e-cars, and lift trucks. This is especially important in the case of unforeseen ad hoc requests that are part of the daily business. The mutual contract signature seals the project and brings the preparations for the implementation of the new software into the next phase. By the end of March 2022, Aicher Group plans to coordinate its mobility service at MUC Airport with INFORM's Staff & Equipment software.

Pulkovo Saint Petersburg Airport (LED) in Russia is upgrading its ground handling services with Amadeus's Altéa Departure Control for Ground Handlers software system. This unified software is designed to eliminate the number of individual ground handling systems at the airport. Instead, staff can now serve any airline using a single interface. By removing the need for ground handlers to switch between different airline systems, the airport intends to reduce training cycles, inefficiency in day-to-day operations and the number of unique actions needed for ground handlers to serve each airline.
Pulkovo's staff will also gain access to improved flight management capabilities, including improved weight and balance forecasts, ensuring bags are correctly positioned in the aircraft hold for optimal fuel conservation. With the transition, disruptions between airlines and the airport are therefore expected to be easier to manage.

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Leonid Sergeev, CEO of the airport's operator, Northern Capital Gateway, commented: "We're committed to being a passenger experience leader within the industry. Right now, there is more uncertainty and disruption than ever before, so our ground handling agents need a system that helps them identify and address any service incidents. Amadeus is helping to simplify our IT set-up with modern technology that supports our passenger experience strategy."

Spanish airport operator Aena, together with low-cost airline Vueling and the group of technology companies consisting of Easier, IDEMIA, Indra, Materna IPS, and Mobbeel, has launched a facial recognition pilot programme for boarding at Josep Tarradellas Barcelona-El Prat Airport (BCN). This is the first time in Europe that all the steps that a passenger takes at an airport have been integrated into one process, and includes, for the first time, self-bag drop. The goal is for passengers to be able to travel all the way to the aircraft without having to show any identification. Based on an identification technology that recognises the physical and non-transferable characteristics of people, biometric devices have been installed in the check-in area, so that passengers can self-check-in their baggage, at the entrance to the security checkpoint, and at the boarding gate, where the passengers' biometric data, facial features (image of their face) and documentation (DNI or passport) will be validated. This streamlines the process and enhances security, from the time a passenger registers online at home until they board their flight. The documents are validated with biometric data only once during the pilot project, as long as the passenger gives their consent for subsequent flights. Aena is currently the sole owner of the biometric database, and is therefore responsible for its management, and the information collected is processed in accordance with the General Data Protection Regulation (GDPR) contained in European Regulation 2016/679 on the processing of personal data and the free movement of such data.
This collaborative project between Vueling and Aena began several months ago with the airline's passengers on the Barcelona to Malaga route. This is the most comprehensive pilot test being conducted at an Aena airport, since it incorporates biometric technology into four travel processes: check-in, luggage check-in, security checkpoint and boarding.
In order to access the aircraft using their face, the passenger has to open the Aena app, go into the 'facial recognition' section and fill in the form. The registration can also be done physically at Josep Tarradellas Barcelona-El Prat Airport in two kiosks opposite gate B35 and in the Vueling self-check-in area.

Passengers flying from Kuala Lumpur International Airport (KUL) in Malaysia can now benefit from new SITA biometric-enabled self-service touchpoints following a technology upgrade. The extensive technology deployment features a hardware and software overhaul, including introducing more than 100 SITA biometric-enabled self-service Smart Path kiosks – the TS6, SITA Smart Path Bag Drop, and an IT infrastructure refresh. SITA's brand-new slimline TS6 kiosks became available from December 2021 and feature wireless connectivity. The kiosks are ready and enabled for SITA Flex and the next generation of common-use API-based services that facilitate a low-touch, fully mobile passenger experience.
The upgrades are part of a broader transition from Airport 3.0 to Airport 4.0, which requires a fully integrated digital ecosystem that provides a seamless passenger journey with the use of business intelligence and the collection of big data. Besides improving passenger experience, goals such as optimizing terminal use, increasing operational efficiency, and growing revenue are part of the Airport 4.0 project.
SITA will continue its role as an innovation partner to Malaysia Airports, with planned proof of concepts exploring single token and touchless journeys to improve the passenger experience and drive new efficiencies.
Sumesh Patel, president, Asia Pacific, at SITA, said: "We are delighted to partner again with Malaysia Airports and support the airport in its recovery from COVID-19. Ensuring fluid passenger experiences while balancing operational efficiency is a high priority for airports globally. With this deployment, we have delivered on both elements, future-proofing the airport for a touchless journey via enhanced

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biometric capability while also driving down operational costs and increasing the resilience and agility of IT infrastructure."

Alstom's Innovia automatic people mover (APM) system began passenger service the same day that the new satellite hall in China's Shenzhen Bao'an International Airport (SZX) opened. The APM system project was undertaken by Alstom's Chinese joint venture (JV) CRRC Puzhen Bombardier Transportation Systems Limited (PBTS) since 2018 and in September 2021, PBTS also won the contract to provide O&M services for the APM system. The Innovia APM system runs on a 2.6- km line connecting an air side satellite hall to Shenzhen Airport's existing Terminal 3. Operating at a maximum speed of 80 kph, travel time for passengers is approximately 3 min. Shenzhen Bao'an International Airport has seen rapid passenger growth, surpassing 52 million passengers by the end of 2019, making it one of the busiest international airports in China. The satellite hall was designed to throughput 22 million passengers and will be an important structure to improve passenger capacity.
The Innovia APM system is equipped with the highest level of automation available to provide convenient transfer services between T3 and the satellite hall for domestic and foreign travellers. PBTS designed, built and commissioned all of the electrical and mechanical equipment, including all the Innovia APM vehicles. The propulsion equipment was provided by another Alstom Chinese JV, Bombardier NUG Propulsion System Co., while its Chinese JV, Bombardier NUG Signalling Solutions, provided the advanced signalling systems Cityflo 650 to Shenzhen Airport APM.

Reno, NV-based Blast Deflectors Inc. (BDI) has been selected by Bombardier to design, manufacture, and install an aircraft test facility for the new state-of-the art Bombardier Global Manufacturing Centre located at Toronto Pearson International Airport (YYC) in Canada. The ground run-up enclosure (GRE) will be used for pre-delivery engine testing of all Bombardier Global business jets, including the Global 7500. Don Bergin, president of BDI, commented: "The aerodynamic challenges of ground running engines at takeoff power while the aircraft is static requires a facility with enormously sophisticated features to control airflow. The Bombardier GRE will include a number of patented technologies, including our VertiVent design. We have previously constructed three GRE facilities in Canada, most recently at Billy Bishop Toronto City Airport." In addition to previous experience with Bombardier, BDI has supplied various types of aircraft run-up facilities for a variety of aircraft. BDI's most recent ground run-up enclosure was constructed at Melbourne Orlando International Airport and is currently being used primarily for testing business jets after final assembly. The new ground run-up enclosure is part of an investment by Bombardier of approximately $400 million USD. Site construction is underway and the first production activities at the new facility are set to begin in 2023.

Goldhofer Airport Technology celebrated a milestone as the first electric towbarless aircraft tractor has now been delivered. Shortly before Christmas 2021, the first electric towbarless aircraft tractor left the company's production plant in Memmingen, Germany. Following the successful completion of trials in Munich, Vienna, Zurich, and Los Angeles, the first customer vehicle has now been produced and delivered to Lufthansa LEOS. This is also a milestone for Frankfurt Airport, and a big step forward on the road to emission-free ground handling there.
The Phoenix towbarless aircraft tractor is the flagship of the Goldhofer tow tractor fleet. It is a powerful performer, offering speeds of up to 32 km/h for maintenance tows. It also has the versatility to handle the full range of today's aircraft up to a maximum take-off weight (MTOW) of 352 t. This makes it one of the biggest-selling tow tractors on the market. The e-version comes with Goldhofer's IonMaster technology, a high-performance electric drive that works with extremely efficient 700 V lithium-ion batteries and is engineered to the highest standards of safety. In addition, the TMS system (Thermo Management System), which is part of the IonMaster concept, delivers very short charging times, and supports fast and opportunity charging at all standard AC and DC charging points up to 150 kW.

Switzerland-based airport security firm Travizory Border Security has installed a biometric corridor for traveller screening at Seychelles International Airport (SEZ) in the Republic of

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Seychelles, to create a contactless travel experience for passengers. The system has an overall match time of one second per traveller, meaning it can screen an average of 30 travellers/min for health risks. As Seychelles was one of the first countries to reopen fully to tourists, regardless of vaccination status, in early 2021, the biocorridor was installed to replace travel authorization (TA) QR codes and ease the flow of passengers through the terminal. Integrated with the Seychelles Islands travel authorization system, the biocorridor uses its facial recognition technology to validate if the traveller has submitted the required health documentation and has been authorized for travel. The corridor also checks passengers' temperatures with a thermal camera to determine their classification for handling. The system then flags to the health officer on duty how each traveller has been categorized, based on the conducted risk assessment. Travellers may be directed straight to immigration, sent for medical examination, or sent for quarantine.

Publisher's note: The articles in this special report, compiled for **inter airport Europe**, are samples from the biweekly **Momberger Airport Information** newsletter, published since 1973. The newsletter is an advertising-free, global airport news service that consists of 8 modules and allows subscribers to customize their own newsletter package. The items in this report represent only a small sample of **Momberger Airport Information**. The modules that make up the biweekly newsletter are Airport Development (DEV), Calendar of Events (CAL), and the subscriber-selectable modules Airport Operations (OPS), Ground Support Equipment (GSE), Air Traffic Services (ATC), Consultant & Contractor / Sustainable Aviation (CON), Airport Information Technology (AIT), and Maintenance Base & FBO (MRO). For more information and to order an annual subscription, please visit www.mombergerairport.info

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