At ADB SAFEGATE, we understand airlines' key priorities to help improve performance

When a leading airport in the United Kingdom operating with one runway, faced an increased traffic load and congested gates, ADB SAFEGATE stepped in to automate the aircraft parking and turnaround process. The result was a more efficient and predictable operation with shorter taxi and turnaround times, which in turn reduced congestion and helped create capacity for an additional 21 slots per day for aircraft to land.

Similarly, when a leading North American airline was looking for a solution to better predict, manage through and recover from thunderstorms and other weather events adversely impacting its performance, we came on board. As an integral part of their Irregular Operating Conditions (IROPs) plan we have helped the airline create an operation that can react to change to mitigate delays and the impact on passengers.

According to the US Bureau of Transportation (BTS), external factors, such as severe weather conditions, have been the main cause of late arrivals since it started collecting data in 2003, but weather delays are now being surpassed by other factors. In more than 50% of cases, the leading reason for a delayed flight can now be traced to circumstances within the airline's control, such as refuelling, cleaning, maintenance and crew scheduling. From 2005 to 2015, 28-45 million delay minutes per year were attributed to factors that were under the direct control of US airlines.

I'm Per Andersson, Senior Advisor - Airlines at ADB SAFEGATE. My singular focus is to explore how we can help airlines be more efficient and safe at every step of the process – from approach to departure. Having worked as a flight engineer early in my career and subsequently as COO and Accountable Manager – with responsibility for airline operations including flight operations, ground operations, technical operations and crew training – I have a 360-degree view of the industry. My team comprises experts from diverse backgrounds such as ATC and ANSPs who bring a keen understanding of airport processes and systems as well as the challenges airlines and airports face. This, combined with ADB SAFEGATE's specialist focus in the airfield, tower and gate, enables us to ensure that all parts of an airport work together as one.

Time is your most valuable asset. Airlines and airports agree that taxi time is wasted time. We work with the world's leading airlines and airports to reduce the time aircraft spend on the ground, eliminating inefficiencies and achieving more with less. Our integrated tower, airfield and gate systems support the highest operational efficiency to minimize aircraft time on the ground. This leads to increased airport capacity within existing airport infrastructure, while always maintaining the highest level of safety. We call this Airport Performance.

Per Andersson

Senior Advisor- Airlines

**Solutions for improving ground operations efficiency (www.aircraft-commerce.com; Jun/July 2017)*

ADB SAFEGATE is a leading provider of intelligent solutions that deliver superior airport performance from approach to departure. We partner with airports and airlines to analyze their current structures and operations, and jointly identify and solve bottlenecks. Our consultative approach enables airports and airlines to improve efficiency, enhance safety and environmental sustainability, as well as reduce operational costs. Our portfolio includes solutions and services that harmonize airport performance, tackling every aspect of traffic handling and guidance, from approach, runway and taxiway lighting, to tower-based traffic control systems and intelligent gate and docking automation.

ADB SAFEGATE has 1000+ employees in more than 20 countries and serves some 2,500+ airports in more than 175 countries.

For more information about ADB SAFEGATE, please visit our website at adbsafegate.com

Airport Performance boosts airlines business

ADB SAFEGATE offers one of the industry's most extensive portfolios as the foundation for fully integrated solutions for visual aircraft guidance from approach to departure. **Here are some examples of how we can help.**

#1 Weather proofing Lahore Airport

PROBLEM Dense fog during the winter months was causing hundreds of flights to be cancelled at Lahore Airport as well as impacting costs due to the shutdown of operations, delays and diversions.

SOLUTION ADB SAFEGATE helped implement a CAT IIIB-upgrade at Lahore Airport that included the deployment and integration of its airfield ground lighting, tower solutions, Advanced Surface Movement Guidance Control System (A-SMGCS) and Safedock Advanced Visual Docking Guidance System (A-VDGS) for smooth and safe guidance from approach to departure in all weather conditions.

BENEFITS Aircraft movements increased from 0 to 29 per hour in low visibility conditions. Weather proofing the airport in under 12 months helped decrease cancellations, delays and diversions which in turn reduced costs for airlines, airports and passengers.

#2 Minimizing delays caused due to Irregular Operating Conditions (IROPs)

PROBLEM A leading American airline was unable to dock and deplane aircraft when the ramp was closed due to lightning and other irregular weather occurrences, resulting in delays and unnecessary fuel burn.

SOLUTION The airline turned to ADB SAFEGATE's Safedock solution to help guide its pilots to within 10 cm of the stop position in a consistent, safe and time-saving manner, regardless of the weather, time of day or size of the aircraft. A key feature of the solution was the RIDS (ramp information display system) capability to display critical flight information to ground and flight crew via the LED display whenever the A-VDGS wasn't actively docking aircraft. ADB SAFEGATE also worked closely with the airline to develop and deliver the world's first multi-station SafeControl Apron Management (SAM) system providing a centralized view of their major hub operations and the ability to monitor activity and control functions from one system.

BENEFITS Passengers no longer have to wait on the taxiway while engines run and the weather clears. The built-in efficiency of the automated system gets aircraft to the gate without delay and provides tools to turn aircrafts faster, saving time and resources.

#3 Reducing taxi time and aircraft collisions on the ground

PROBLEM ICAO safety data in 2015 shows there were 36 runway safety related incidents globally. Across each ICAO region, there are on average two reported runway incursions every day, with route deviations and pilot confusion accounting for a large proportion of errors. These deviations may also expose the risk of aircraft damage through collision with other aircraft or obstacles.

SOLUTION Follow the Greens (FTG), as the name suggests, uses the green runway exit, taxiway centreline and stand lead-in / lead-out lights to illuminate the route and safely guide flight crew from runway to gate or gate to runway. Automating FTG with Safedock A-VDGS goes one step further to seamlessly ensure the aircraft docks safely and efficiently.

BENEFITS In addition to improving safety, airlines receive substantial cost savings from incident and fuel reduction and benefit from increased capacity/slots, reduced taxi time and improved performance in low visibility.

Example of cost savings:

Narrow Body	Conditions			Taxi time saving	Cost saving (USD)	Reduced CO_2
Average taxi time	8 min	CAVOK	300 days	8%	1 404 000	8%
Number of movements	75/day	LVC	65 days	15%	570 375	15%
Taxi fuel consumption	15kg/min					
Wide Body	**Conditions**			**Taxi time saving**	**Cost saving (USD)**	**Reduced CO_2**
Average taxi time	8 min	CAVOK	300 days	5%	702 000	5%
Number of movements	30/day	LVC	65 days	15%	456 300	15%
Taxi fuel consumption	30kg/min					
Total saving					**3 132 675**	

	CAVOK	LVC
Safety		
Predicability		
Communication Time	-48%	
Taxi Time	-17%	-38%
Taxi interruptions	-41%	-66%
Fuel Burn & CO_2	-19%	-41%

Numbers according to the SESAR Real-Time Validation Exercise EXE VP-649 on Automatic Guidance via Airfield Ground Lighting at Frankfurt Airport (FRA)

#4 Reducing wasteful fuel burn

PROBLEM Fuel is the largest operational cost for airlines and according to Airlines for America flight delays cost airlines several billion dollars each year. Strategies to increase fuel efficiency and implement new technologies and procedures to conserve fuel and reduce emissions are critical to protecting airline profits and the environment. The high cost of fuel means that even short delays waiting for gate or stand availability information or ground crew to marshal in arrivals are no longer viable.

SOLUTION ADB SAFEGATE's A-VDGS quickly finds available gates or stands and gets aircraft parked without the wait. Thereafter, SAM connects the A-VDGS with other apron systems to share accurate flight information and real-time turn status to maximize efficiency, safety and environmental performance. When these solutions are integrated into an Airport Collaborative Decision Making (A-CDM) program, the result is more efficient and sustainable operations.

BENEFITS

A 40 gate installation can reduce fuel consumption by nearly 200,000 gallons and pay for itself in less than 12 months.

- *40 gates with 8 arrivals per day*
  116,800 arrivals per year
- *116,800 x 22% delayed arrivals, 77 seconds average*
  32,977 delay minutes per year[1]
- *32,977 minutes x 6 gallons fuel burned per minute*
  197,682 gallons of fuel saved
- *32,977 x $65,43 per block minute[2]*
  $2,157,685 savings in direct operating costs
- *Safedock investment for 40 gates*
  $ 2,000,000
- *Payback in less than 12 months*
  $ 157,685 savings first year

[1]Actual results from a time study at a U.S. hub station
[2]AAA 2015 figure that includes all direct costs associated with airbone and taxi delays including fuel burn, crew time and maintenance.

A milestone in our journey towards delivering Airport Performance Solutions from approach to departure: ADAC

Our partnership with the Abu Dhabi Airports Company (ADAC) is a prime example of our end-to-end expertise. Our innovative solutions enabled the airport to create additional capacity at existing terminals to improve the traveler experience while maintaining world-class standards of airside safety and compliance.

ADB SAFEGATE was brought in very early on this project with a pure consulting request. In the consultancy phase, we presented a large set of recommendations to make the airport more efficient and performance oriented while still meeting regulatory requirements. It was not long before ADAC appointed ADB SAFEGATE as its execution partner. Using our SmartExpansion Path methodology, a survey of the existing airside infrastructure was conducted and the airfield was redesigned and the airport's airfield ground lighting infrastructure was optimized with new light, power, control, and surface guidance systems.

Since then, we have expanded our role adding design and deployment of a new Airfield Lighting Control and Monitoring System (ALCMS) and an A-SMGCS. The A-SMGCS will include ADB SAFEGATE's OneControl Integrated Controller Working Position to simplify air traffic controller workload and help ensure the highest level of airfield efficiency and safety. The integrated tower solution also includes an electronic flight strip solution (DEFLIS) and a departure manager (DMAN), as well as a video recording system, with full integration.

To provide focused support, ADB SAFEGATE has located its experts and operational resources at the airport. As ADAC tackles operational challenges in a holistic manner, ADB SAFEGATE will steer and support the complete survey-design-build-maintain lifecycle for one of the airport's most ambitious expansion projects.