

# ascend

Taking your airline to new heights

A portrait of Muhammad Ali Albakri, Chief Information Officer of Saudi Arabian Airlines, wearing a dark suit and glasses, looking directly at the camera. The background is a bright, modern office space with large windows.

## THE JEWEL

A Conversation With ...  
Muhammad Ali Albakri,  
Chief Information Officer,  
Saudi Arabian Airlines,

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SPECIAL SECTION



**THE CONNECTED AIRLINE**



# Going Mobile

The next generation of airline wireless technology

Mobility is the catalyst for the connected airline. It enables every part of the industry to accomplish tasks and reach objectives once thought too costly and too futuristic.

■ By Sherman H. Moore | *Ascend* Contributor

**E**lectronic automobile fuel injection is a useful analogy for the impact wireless technology is having and will have on the connected airline. You may be wondering what fuel injection has to do with wireless enablement of an airline, including airport operations and extended passenger experiences such as rebooking, ground connections and travel accommodations.

In the 1970s, automobile companies replaced carburetors with less-expensive fuel injection and, in a few short years, increased fuel efficiency so dramatically the world's strategic oil reserves were effectively increased by one third. In effect, "technology" changed an entire "system."

In regard to the air transport system, wireless technology — combined with the other pieces of a comprehensive architecture plan (software, computing, process modification and end-point enablement) — will help create a wireless transformation. The result will be an airline operations game changer.

Already, wireless capabilities are making individual elements of air passenger transport a safer, more seamless, cost-effective and pleasant experience for the airline, its passengers and employees. Pilots use iPads for electronic flight bags to simplify and improve their processes; thereby, reducing time and paperwork, enabling them to focus on other important elements of their duties.

Airport staff is better able to handle congested gate conditions or help special needs passengers by using wireless connected devices that can order wheel chairs to be delivered to a specified gate or track the handling of unaccompanied minors through the airport. Baggage and cargo are tracked from curb to curb, minimizing misdirected luggage and ensuring proper loading and handling while increasing safety and improving aircraft fuel economy. All the while, passengers are informed of the exact location of their bags, and cargo handling is easier and more consistent.

These examples provide clues to the changes afoot. It's important to not allow the benefits of each element to distract from the pursuit of overall network opportunities.

First, it's important to step back and consider the end goals and how the near future will look and feel when these initial forays are orchestrated into a comprehensive connected system to create a new age in air travel. Start by making a few conceptual assumptions. Imagine a world where every person, place and thing associated with an airline is able to provide secure intelligent data gathering in real time, anywhere, all the time. This information would then be available to connected systems that can reiteratively process, access and integrate the information into meaningful representations



**Connecting With Passengers** From a smart phone, airline customers can receive instant updates about their flight status, best routes to the airport, coupons to airport restaurants and an array of other valuable information that will improve their end-to-end travel experience.

of current conditions, status, options and decision points.

Symmetrically, assume these same entities have the capability to receive guidance, instructions, suggestions and actionable support. In addition, software systems are integrated, or at least interconnected, and all processes to some extent work together in real time to optimize achievement of a carrier's goals.

These goals include a "perfect" passenger experience, optimized fuel consumption, maximized equipment utilization, and the creation of a more satisfying and productive work environment for every employee. Alchemically creating the next generation of air transportation is possible now. To further explore this scenario, the focus should be turned to a "day in the life" of a fully connected hypothetical airline.

It's 5 a.m. on a Thursday, and the lights are on for a North American-based airline. Crews are arriving at the airport, and the aircraft are assigned for the day's operation. Last-minute maintenance checks are being completed. However, flight schedules and airport operations are being disrupted by storms developing in the northeastern United States.

Janie and her family, who will be traveling on the airline later today to Miami, Florida, just heard the coffee maker go off in the kitchen of their St. Louis, Missouri, home. Janie has a smart phone and has opted to wirelessly interact with the airline, which has notified her of her flight's current gate assignment, expected departure time and aircraft type.

But this is only the beginning. A restaurant at the airport she frequents has pushed a

coupon for US\$5 to all passengers assigned at a certain time to Janie's flight departure concourse. The airport authority has deployed inexpensive wireless cameras to calculate empty parking spaces and furnishes this information to the airline, enabling it to provide optimal suggestions for parking options.

The airline is interconnected to city transit authorities, permitting dissemination of information to Janie's GPS, including estimated travel time and near real-time optimal routing to the airport as well as a suggested departure time from Janie's home. Wireless connectivity is used to advise of delays or congestion at security screening checkpoints. Airport security officials can respond accordingly using their wireless devices to redirect resources to open additional checkpoints. Security data is not only used to optimize airport operations, but is also securely transmitted to Janie (on her smart phone) as the family prepares to depart from home in their new fully charged, electric family van.

Behind the scenes, a flight crewmember assigned to Janie's flight uses a wireless application to notify the airline of his need for a sick day, and crew scheduling automatically adjusts assignments according to predetermined policies and notifies and confirms the change via employee-owned smart phones.

An updated EFB is already loaded with specific flight information and aircraft data, enroute, as well as performance charts, checklists and weather forecasts for the pilots and crew. Much of the crews' preflight activities were accomplished via their EFB tablet before leaving the hotel for the airport. Significant



time is saved for the crew as they go directly from the hotel to the aircraft to check in and perform their preflight activities.

Because the aircraft scheduled for Janie's flight has been delayed by storms over Newark, New Jersey, the airline operations controller wirelessly notifies airport maintenance personnel and, using handheld fleet applications, they are able to confirm the ability to service and substitute an available aircraft with similar capacity.

This information is automatically distributed wirelessly to the EFB, ground crews, gate agents and catering. Schedule change notifications are wirelessly sent to maintenance crews in Miami advising of adjustments to work priorities for ongoing maintenance operations as well as loading their handheld devices with new instructions.

All adjustments and updated information are transmitted internally to every person and device associated with or impacted by the changes, including system operations control, airport operations personnel and reservations. Up-to-date operational information is provided to the right groups based on "just-in-time" technology to enable the minimization of the disruption caused by the change in aircraft. New flight plans are generated with new aircraft data to optimize the fuel load. Passengers are updated via their wireless phones of changes in boarding and departure times.

After completing the pre-flight checklist, two crewmembers have performed a trip-trade using simple texting capability. Information regarding the change is automatically updated and sent to the airline's crew management system.

The entire scenario has unfolded unbeknownst to Janie and her family. While enroute to the airport, Janie's children use a tab on the travel screen of her smart phone to peruse movies, games and music, offered courtesy of the carrier and its partners, and they select and download to the smart phone an entertainment package for the flight.

Upon arrival at the airport, Janie drops off her son and mother at the airline's departure area because her mother broke her ankle only a month prior to the trip and still needs crutches to walk. Airline personnel have already made arrangements for the closest wheel chair to be brought while Janie parks the car.

Janie uses her smart phone as an electronic wallet so all information is auto-generated as her bags are weighed and RFID tagged for easy identification based on weight and ownership. Ticketing and baggage claim information, as well as security profiles, are loaded into Janie's smart phone by the airline departure control system.

The family passes through security and quickly locates the departure gate, which was previously congested with passengers boarding a flight at an adjoining gate. However, the

backup has been cleared by roving gate agents using tablet devices with credit card swipe readers as well as ticket barcode readers.

Once on board the aircraft, Janie looks out the window and notices the baggage handlers loading luggage. What she doesn't know is

#### HIGHLIGHT

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that RFID tags on the bags are audibly guiding the ground crew using overhead readers in the cargo hold to ensure the bags are on the correct flight and in accordance with the load plan for optimal balance of the aircraft to reduce fuel consumption and expedite off-loading at their destination.

Janie also notices ground personnel checking a component on the aircraft's exterior but is unaware that schematics, proper configuration and confirmation of any changes in parts or adjustments are being communicated in real time to ground crew as well as airline maintenance and fleet systems. Just before passengers are instructed to put away all electronic devices for departure, Janie receives notification on her smart phone that her bags are on board. She knows upon arrival in Miami she will receive a similar confirmation guiding her to the baggage claim area where her luggage will be delivered. Her rental car will be waiting and is easily activated by her smart phone, which is preloaded by the car rental company with the best route to the hotel where her family will be staying.

Hundreds of variations of this scenario are possible today using current and future-ready capabilities available via wireless and mobile technologies combined with open software solutions.

*Sabre Airline Solutions*® and AT&T, along with many other leading companies, are working to bring turnkey systemic system-wide wireless-based software and device solutions to airlines around the world. The solutions will be open, adaptable and flexible to build architectural change over time. These changes are happening today.

These advances in mobile technology and connectivity are significant. However, to create benefits and compelling investment returns beyond a la carte elements and on a network level instead, the modification of operational processes and approaches to problem solving is necessary.

Carriers with a willingness to adjust processes and mindsets can introduce and achieve an alchemy where the entire system — passengers, operational control, finance, fleet assignment, call centers, airports, ground transportation, flight crew and ground personnel and hundreds of additional related functions — works together to generate far greater results than in today's environment.

Aviation innovation and technology breakthroughs have not subsided, but in many ways they are evolving from simply improving the effects of aerodynamics and avionics to modifying processes and enabling employees. Working together, airlines, airports, employees, passengers, environmental agencies, aircraft manufacturers and the communities they serve worldwide will benefit from these innovations.

The changes in the aviation industry are based on the meaning of two key words — connectivity and mobility. Providing the right information to the right people at the right time through the avenues of connectivity is the key to success today. The right decisions can be made quicker and easier when connectivity is at the heart of an airline's operation. This leads to improved economic achievement and customer service.

The second change is that this connectivity is associated with being mobile. An airline operation is very fluid, not just in distance between airports but within the airport and between the airline and its customers. Mobility is maintaining connectivity regardless of where the components are in a network. It provides the ability to transport the creativity of the airline to wherever it can best be utilized to manage the operations and assist its customers. Connectivity and mobility — the future is limited only by our imagination. ■

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