



# Airport Security: Optimizing Traveler Service While Meeting Security Requirements

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White Paper



## Executive Summary

Airport security requirements are ever-expanding. What's more, airports and airlines alike need to compete more fiercely than ever, improving services while lowering costs. At the same time, passengers are increasingly dissatisfied with some of the inconveniences associated with air travel – and seeking alternatives such as high-speed rail.

This white paper explores ways that airports and airlines can deploy information technology to address these core issues. In particular, it lays out a scenario in which the innovative application of existing, cost-effective biometrics and passenger self-service solutions can simultaneously increase security, streamline processes, reduce costs and deliver better service to customers.

## The Security/Service Conundrum

Airport security requirements aren't going away, and in fact will probably keep expanding. As a result, passengers will likely be increasingly dissatisfied with air travel – and seek alternatives.

But is there a way to satisfy airport security requirements while maintaining or even improving processing efficiency and, consequently, passenger satisfaction?

Clearly this is a delicate balance. It's affected by external factors such as government regulations, the limits of airport architecture, and processing bottlenecks such as security screening. It's further complicated by the fact that key airport processes, or flows, are handled by multiple organizations, including airlines, ground handlers, airport concessionaires, the airport operator, the police and government.

But within these constraints, IT can play a transformative role – not least because it affords opportunities for significant simplification, decentralization and cost reduction.

In particular, IT solutions such as biometrics can automate processes and enable passenger self-service that can dramatically improve passenger and baggage flows while maintaining airport security.

## Coping With Competition

All commercial stakeholders in the aviation industry are currently under competitive and financial pressures. Airlines compete fiercely in all markets – not only among themselves but also, to an increasing extent, with other modes of transportation, especially high-speed rail. High-speed trains are stealing market share in a growing number of regions, including Tokyo-Osaka, Washington-New York, London-Paris, Paris-Lyon, Paris-Brussels, Madrid-Barcelona, Milan-Rome and Stockholm-Gothenburg, among many others.

The ability to offer a fast, consistent and hassle-free passenger experience plays a critical role in this competition. That's because other than price, the convenience and total time “door-to-door” are often the determining factors when travelers choose a mode of transport. The shorter time for air travel is often offset by longer transfer times to and from the airports. So, the processing time at the airport in many cases is the final decision driver.

As a result, airports need to offer airlines the infrastructure and level playing field to help them attract passengers – and thereby generate both aviation and non-aviation revenues for the airport operator. Bear in mind that there's also stiff competition among airports, including not only large hub airports but also origin-and-destination airports, city airports and secondary low-cost airports. One example is Bergamo, Italy's Orio al Serio (BGY) airport, which competes successfully with Milan's Linate (LIN) and Malpensa (MXP) airports. BGY saw a 13 percent increase in passengers from 2007 to 2008, while LIN lost 7 percent and MXP declined by 19 percent. (Note that those numbers were affected by Alitalia's decision to move its hub to Rome Fiumicino.) Another example is the secondary low-cost Brussels South Charleroi Airport, which increased passengers by 20 percent in 2008, while Brussels Airport at Zaventem saw growth of only 3.5 percent.

Competitive pressures are being compounded by other factors, including a sensitive global economy and environmental concerns. It's no wonder airports are looking closely at any potential solutions that can improve the passenger experience or reduce operational costs while still meeting increasing security requirements.

## Optimizing Process Flow

Increasing competition and financial pressures are the drivers behind several International Air Transport Association (IATA) work groups, including the Fast Travel Working Group and Passenger Facilitation Working Group, which fall under the Passenger Experience Management Group (PEMG). PEMG has adopted a model called the Ideal Process Flow (IPF) as the basis of its work (see Figure).

IPF comprises 14 steps. Although the content and sequence of the steps may vary for different airports and different types of journeys, IPF provides a quick and convenient view of the departure and arrival passenger flows. It also provides a useful basis for a discussion of how to integrate passenger and aviation processes with security and government-mandated processes in a self-service environment.

So, how can airports and airlines offset the negative impact of increased security requirements on passenger satisfaction? One way is to ramp up the number of security, border control and customs staff, along with the number of security screening points. But this comes at a very high cost for both staff and real estate. What's more, while it may reduce queue length, this approach doesn't reduce the actual passenger-processing time at each checkpoint.

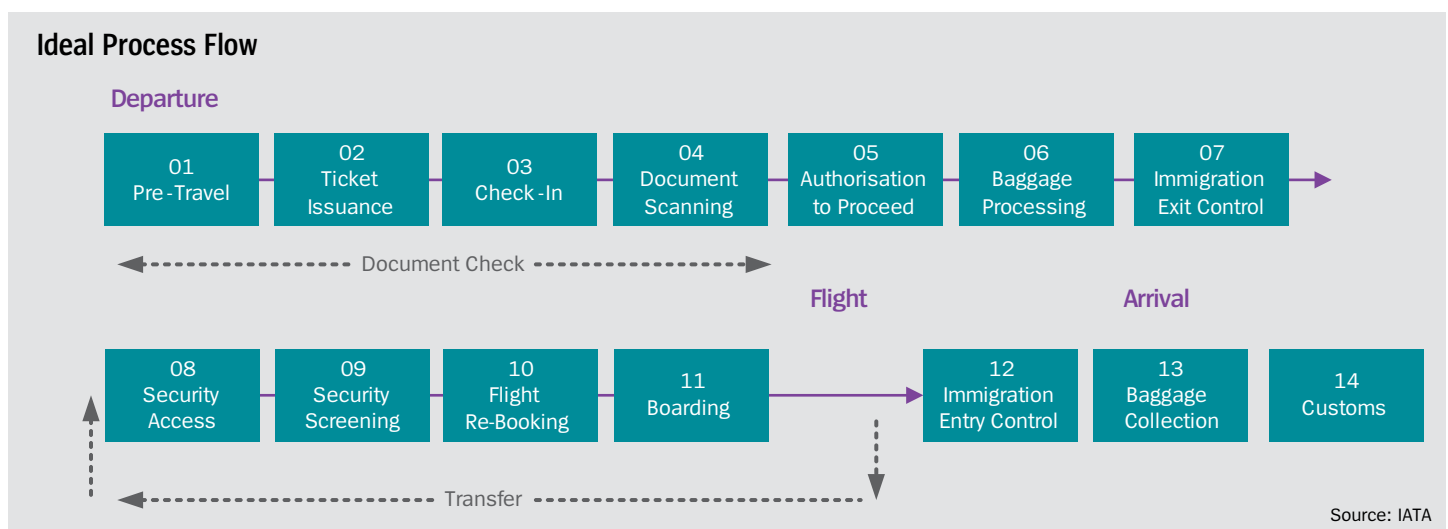
A more effective approach is the innovative use of IT to consolidate and streamline processes and add functions in a passenger self-service environment.

In fact, during the past two years passenger self-service has been a burgeoning phenomenon at airports around the world. Certain steps in the departure process, such as check-in, can already be handled through self-service options at a kiosk or over the Web. This approach is delivering significant savings. For example, a traditional agent-operated check-in costs an airline up to \$4.50, while the cost for a Web check-in is only about \$1.50.

Self-service check-in also provides obvious improvements in passenger convenience. But these benefits can be lost in later steps for bringing the passenger onboard the aircraft. And the more steps, the more delays, the worse the passenger experience.

For example, a domestic or intra-Schengen passenger traveling in Europe with only carry-on luggage during off-peak hours will most likely enjoy a real benefit from self-service check-in. But the situation is much different for an international passenger traveling with baggage during peak hours. This passenger will typically have to queue up at the kiosk, then at the bag-drop counter, then at the security checkpoint, then again at the border-crossing point and finally when boarding the aircraft – having had his or her boarding pass and form of identification (FOID) examined multiple times.

IT in a passenger self-service environment can't do away with every one of these hassles. But it can certainly help reduce total passenger processing time while delivering an overall better passenger experience.



The Passenger Experience Management Group of the International Air Transport Association has adopted the Ideal Process Flow model as the basis of its work.

## A Biometric Proposal

Let's consider a scenario. A traveler checks in for her flight from her home PC. She receives an electronic boarding pass on her mobile phone. She has a bag to check, so she prints her bag tag, folds it according to the instructions and inserts it into the plastic holder attached to her bag.

### Departure

The passenger then drives to the airport parking lot. She slows down and, while she's still in motion, a biometric reader scans her irises or facial image. Because the traveler is a frequent flyer, the system can verify her identity. It also knows which flight she's on. And it can check for available parking spaces and direct her to the most convenient one based on her profile and frequent-flyer status.

At the airport, communication with the traveler is handled through touch screens that allow two-way interactions – for example, to select and confirm a seat on the plane and to display the parking space number and location, along with a printed or electronic reminder.

When she gets to the departure hall, she drops her checked bag at a self-service bag-drop station. Her pre-tagged bag is automatically scanned, measured and weighed. Her biometrics are captured for verification that she owns the bag and when she later boards the plane. The biometrics captured are the three biometrics – face, fingerprint and iris – endorsed by the International Civil Aviation Organisation (ICAO) as appropriate for travel facilitation. Even though she's traveling during peak hours, she still hasn't had to queue up anywhere, and all processes have been automated.

The next step is a security screening check to allow the traveler to go airside. This remains a bottleneck, but the interruption could be transformed into an opportunity to enrol passengers that haven't previously been detected – for example, those that checked in online, didn't drive to the airport and didn't check luggage. It's also an opportunity to incorporate the results of the screening process into the end-to-end passenger profile, answering questions such as, "You took a bag through screening but you aren't carrying it on the plane; where is it?" In certain environments, passenger profiling could also take place at this checkpoint, providing an opportunity for risk management at the screening point – for example, directing one passenger to a millimeter wave-scan screening while directing another to the standard magnetometer.

After the traveler is airside, she still needs to go through passport control, assuming exit processing is in place. She proceeds to the fast-track self-service lane, where her electronic passport is scanned and her biometrics read and verified. Which biometric used at each stage could vary according to customer preference or airline/airport/government specifications. While she proceeds through the first gate, her information is checked against government no-fly lists. By the time she reaches the second gate, she has been cleared for exit, and the second gate opens.

The traveler now finds herself with plenty of time either to shop or to relax in the frequent-flyer lounge, to which she has automated entry through the scanning of her boarding pass and biometrics. She could even receive special offers based on her frequent-flyer status, and she could be notified via text message when her flight is ready for departure.

Once she's at the boarding gate, she scans her electronic boarding pass and has her biometrics verified. The system thereby confirms that the person boarding the plane is the person who checked in. A turnstile opens and allows her to board the aircraft.

## Arrival

At the traveler's point of arrival, she passes through immigration the same way she did during departure. The use of a globally interoperable electronic passport as FOID avoids the potential problem of incompatible systems at different airports. Advance passenger information allows immigration to pre-emptively screen passenger profiles and decide, even before the plane has landed, who should be stopped for further controls.

If her bag hasn't arrived, the traveler can use a self-service kiosk to enter her information so that her bag can be tracked and delivered to her destination. She then proceeds through customs.

When her trip is complete and she returns to her originating airport, she can proceed directly to her car. On the way out of the parking lot, her irises or facial image is scanned again, and the cost for parking is automatically charged to her credit card or bank account according to her profile preferences. At this point she has moved through the entire process with a minimum of interruption and inconvenience.

## Viable and Value-Added

Extending passenger processing beyond the airport terminal isn't news. But the scenario described above automates and streamlines virtually every passenger-processing touch point. It simultaneously increases security, streamlines processes, reduces costs and delivers better customer service.

The benefits to the airport operator are intuitive, and the return on investment is straightforward. For starters, less terminal real estate would be required for passenger handling. Just as compelling, optimized deployment of staff would enable a flexible response to changing conditions, reducing costs while ensuring overall tighter security.

What's more, using these same concepts, automated kiosks could be installed in railway or subway stations or other locations distant from the airport. This would free up expensive and scarce airport real estate that could be used for revenue-generating purposes such as retail stores and restaurants.

By focusing on just five steps of the IPF model, IATA's Fast Travel Working Group – which has as its mission “to reduce airline costs and enhance the passenger experience by offering a range of self-service options throughout the journey” – estimates industry savings of up to \$1.6 billion. Extending the scope beyond those five steps, as described in our scenario, should make possible significant additional savings.

Implementation of just a portion of such a self-service approach is already paying dividends for forward-looking organizations. For example, All Nippon Airways has made innovative use of self-service mobile technology on its Tokyo-Osaka route. As a result, it reduced average passenger time at the Haneda Airport to about 15 minutes. The airline can now offer its passengers 25 minutes' less travel time – city center to city center – compared with the high-speed train.

The use of biometrics for strong verification of passenger identity can extend self-service and convenience throughout the travel experience. From booking a flight to arriving at the airport, from claiming luggage to leaving the terminal, the passenger's identity is the linchpin that enables the automation, streamlining and identity assurance of processes – and that meets security requirements while improving the passenger experience.

Finally, the technology to enable this scenario already exists, is deployable and can dovetail with existing passenger-processing systems. The costs to implement are comparatively small given the potential for substantial and ongoing cost savings. And the ability to meet security requirements while improving customer satisfaction makes the investment in these solutions compelling indeed.

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