



## Streamlined border control at Paris Aéroports

## Reducing border crossing times through automation

Paris Aéroports first introduced the PARAFE system (Automated Fast Track Crossing at External Borders) in 2009 at Paris-Charles de Gaulle airport. In 2016, they chose Gemalto to modernize their first generation Automated Border Control (ABC) solution, and the project awarded to Gemalto encompassed the equipment, deployment and maintenance of 87 new generation ABC gates based on fingerprint recognition technology.

This second generation solution was delivered in 2017 and aimed at increasing the flow of passengers while improving perceived quality. The ABC gates have been implemented across Paris-Charles de Gaulle and Paris-Orly airports, for a combined annual traffic of over 100 million passengers in 2017.

Passengers are able to cross through the new gates simply using their passport and submitting a finger print, which saves them substantial time both on departure and arrival compared to the manual control.

The solution is now evolving from fingerprint recognition to facial recognition, and more gates are being added to the initial 87. Facial recognition is improving the processing time per passenger and allowing more travelers to use the gates.

With facial recognition, over 45% of Paris Charles de Gaulle and Paris Roissy travelers can use the eGates and benefit from a very smooth traveler experience, against only around 10% of travelers with fingerprint recognition.

## Paris Aéroports taking care of their passengers

All the passenger studies converge on one point: the stress curve is very high on arriving in the terminal, and then plunges once the formalities are over. This is well-known to airport managers who derive over 50% of their revenue from "non-aeronautical" business: hotels, parking, business centers, and especially from the retail zones. The revenue from retail is very much correlated to the passenger experience, as the average basket will be proportional to the time left to the passenger before boarding.

The passenger experience at arrivals is equally important, as immigration controls have become the main source of dissatisfaction among passengers disembarking at Paris-Charles de Gaulle. Despite the growth in visitor flows, the French Border Police has not seen its workforce strengthened, so travelers often see their wait time increase at the queue for the mandatory immigration control.

This is why Paris Aéroports have chosen to reinforce their automation strategy at both Paris Charles de Gaulle and Paris Orly airports. The new ABC gates deployed operate both on departure and arrival. The passenger journey is simple: the ePassport is presented to the eGate reader at the entry of the gate. The first door opens if the passport is recognized, eligible and genuine. The passenger enters the mantrap, and the eGate exit door will only open if the biometric match, comparing live capture with the reference stored in the passport's chip is successful. Border police can supervise a batch of gates and all the checks performed from a monitoring application.

Besides the time gain and simplicity of the experience, an additional benefit is that border police can allocate their resources to value added tasks and actual risk detection rather than repetitive tasks that can be automated.



Charles de Gaulle, July 2017

## Face: leading biometrics for automated border control

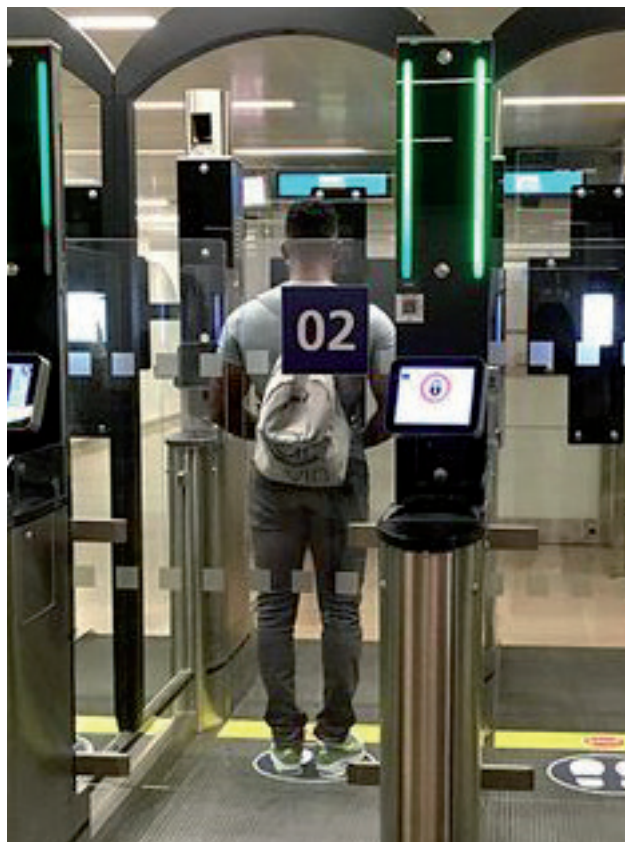
Just like other major European airports, Paris Aéroports has adopted facial recognition, instead of finger print verification. There are 3 main drivers for Paris Aéroports to replace finger print with face biometrics for their new ABC gates.

First, facial recognition allows to open the gates to almost half of all travelers flying in and out of Paris airports, while finger print allowed 5 times fewer travelers to use the gates.

This is because the finger prints that are stored in the ePassport chip are accessible only to the issuing country. For the French Border Control agency to be allowed to access the finger prints stored in German or Belgian ePassport for example requires some prior agreements between France and those countries. This is complex and takes time. The traveler picture on the other hand, is accessible to all countries as the access to it is not protected in the chip.

Second, from a traveler perspective, facial capture is much less intrusive than the finger print capture, and way simpler as it requires hardly any effort or specific action. This makes facial a much more friendly technology and helps drive user acceptance.

The third driver is of course speed and accuracy. The average processing time per passenger is reduced by 2 with face compared to finger print and the possibility of an error is significantly diminished compared to when the traveler has to present the correct finger(s) to the scanner.



*Orly facial liveness, July 2018*

## Standardization, the key for scale and performance

For automation to work and to scale through many countries, standardization is required. This is not an issue as the picture recommendations for passports are defined by the ISO/IEC 19794-5 standard which serves as reference for the International Civil Aviation Organization (ICAO) 9303 standard.

As a result, eligible travelers with an electronic passport can avoid tedious queue-time and pass the border control in Paris in seconds using facial recognition technology. First, the passengers place their passport on the gate's document reader at the entrance. Within seconds, the passport is validated as authentic and unforged. The integrity of the photo, the conformity of the graphics with regard to the standard for the country in question are controlled. Once the passport has been validated, the system connects to databases to identify anyone who may be wanted or constitute a threat.

The biometric matching process begins as soon as the passenger steps into the gate. Mirrors help attract the eyes of the passenger and authentication takes only a few seconds. The system compares the travelers face with the standard

format picture stored in the passport chip. Any anomaly is immediately brought to light, as the facial authentication algorithms used in the Paris gates are particularly robust and powerful, and include liveness detection to avoid any presentation attacks, such as an attempt to present a photo or a video instead of a real face.

Gemalto's Automatic Border Control (ABC) solution deployed in Paris Charles de Gaulle and Paris Orly airports are helping Aéroports de Paris reach a three-fold objective:

- > Increased speed at border control with no compromise on security
- > Increased convenience for travelers meaning a better airport experience
- > Control of costs while boosting revenue from retail thanks to the time saved

