CASE STUDY 2

Portuguese Immigration & Border Service
Table of Contents

EXECUTIVE SUMMARY .................................................................................................................. 3
1 CUSTOMER NAME ....................................................................................................................... 4
2 BUSINESS CASE – BUSINESS DRIVERS .................................................................................. 4
3 CHALLENGE .................................................................................................................................. 4
4 SOLUTION DESCRIPTION .......................................................................................................... 4
5 IMPLEMENTATION OVERVIEW .................................................................................................. 6
   5.1 OBJECTIVES .......................................................................................................................... 6
   5.2 TEST SCENARIOS ................................................................................................................... 6
   5.3 TIMELINE .................................................................................................................................. 6
   5.4 GOVERNMENT INVOLVEMENT ............................................................................................... 7
   5.5 VENDOR INVOLVEMENT ......................................................................................................... 7
   5.6 AIRPORT INVOLVEMENT ......................................................................................................... 8
   5.7 CIRCUMSTANCES REQUIRING SPECIAL DEVELOPMENT ..................................................... 8
6 RESULTS / IMPACT STATEMENT ................................................................................................. 8
   6.1 EFFICIENCY IMPROVEMENTS ............................................................................................... 8
   6.2 COST AVOIDANCE / SAVINGS % ............................................................................................. 9
   6.3 CUSTOMER SATISFACTION ..................................................................................................... 9
7 PHOTOS, VIDEOS .......................................................................................................................... 9
8 LESSONS LEARNT ........................................................................................................................ 10
   8.1 PROS & CONS ......................................................................................................................... 10
9 BEST PRACTICES .......................................................................................................................... 10
EXECUTIVE SUMMARY

The Portuguese ABC eGates project, designated by the name RAPID, was a worldwide pioneer, marking an important milestone and serving as a reference for other nations which later chose to implement similar projects.

To date, approximately 100 ABC eGates have been deployed at 7 different sites in Portugal and since 2007 they have been used for more than 4,000,000 passengers.

2013 marks the beginning of a new development cycle with the deployment of 24 last generation ABC eGates at Lisbon’s airport arrivals and departures hall which will enable border control authorities to optimize and streamline the border crossing process and the airport to provide travellers with an improved experience. From this date on, additionally to the electronic passport verification, the ABC eGates are also able to process the Portuguese National Citizen card and also normal paper passport in conjunction with a Register Traveller Program.

The success of the project resulted from the tight collaboration between the border control service, the airports and the selected supplier.

This document aims to provide an overview of the project.
1 CUSTOMER NAME
SEF - Portuguese Immigration and Border Service

2 BUSINESS CASE – BUSINESS DRIVERS
The introduction of the ePassport, in 2006, allowed the Portuguese Government to offer added value services to its citizens, taking advantage of the new available functionalities contained in this highly secure travel document, mainly the biometric data that was from this moment stored on the passport's chip.

Among the different new services planned, the implementation of Automated Border Control eGates was one of the first programs defined. By having an electronic passport, in addition to the security and interoperability benefits associated with this type of document, citizens would also be able to cross the border more quickly, without having to face long queues.

For SEF it was also an opportunity to innovate and deploy a service that, while maintaining the same level of border security, allowed for a more efficient resource and capacity management, decreased passenger processing times and improved passenger satisfaction.

The deployment of the ABC eGates also allowed the border police to focus more on passenger profiling, where low risk passengers would go through ABC eGates and the high risk passengers could be better supervised by the authorities, using the same amount of human resources.

This program was also set up to be a new revenue stream since for each passenger that uses the ABC eGates the airport would pay a fee to SEF.

Back in 2007, together with the EU legislation, these were the business drivers and constraints that led to the deployment of the ABC program in Portugal.

3 CHALLENGE
The biggest challenge, back in 2007, was the lack of similar programs.

The RAPID project was a pioneer and there were concerns about the technology and even about how to develop it.

What we take for granted today, when talking about ABC, was completely new back then so there was much reservation regarding the reliability of the technology, distrust by many and a general feeling of going into the unknown.

Another challenge was the ePassport interoperability between different countries and how the system would process their different certificates.

In Portugal the authorities had control over the quality of both the photograph and the ePassport but the same did not apply to all countries. There was concern that the system would be unable to process passports from some specific countries, thus reducing the number of passengers that potentially could use the ABC eGates.

4 SOLUTION DESCRIPTION
The workflow chosen by the Portuguese authorities was an integrated Two-Step Process. First, the traveller initiates verification of the travel document and of their own eligibility to use the system. Then, if successful, they proceed to a second stage, where face recognition and other applicable checks are carried out.

On approaching the eGate, a monitor placed next to the document reader instructs the traveller on how to position and inserting of the passport or the Portuguese National Citizen Card. During the passport reading, a battery of tests is performed to ensure the document authenticity, including automatic inspection and pattern matching in both ultraviolet and infrared light (the supervising officer can also display these document images for manual inspection, id required).
The security on the chip is also validated, by checking the passive and active authentications. Furthermore, a comparison between the photograph printed in the passport and the one stored in the chip is also performed. Only when this validation has been concluded successfully do the entry doors open to allow the traveller to enter the eGate.

Upon entering the eGate the biometric periscope will detect the traveller and automatically adjust its height. Some of the most important security checks activated at this point in the process include the detection of tailgating, liveness (to detect spoofing - the use of a photograph in an attempt to fool automatic facial recognition) and objects left inside the eGate. In parallel with the security checks performed by the gate itself, passport data is sent to SEF backend services in order to perform real-time background checks.

In this second step of the border crossing process, live images of the face are captured and compared with the photograph stored in the passport’s chip. If the biometrics matches, the exit door opens and the traveller can continue their journey.

All the transaction data generated by the eGate, including the CCTV stream, is consolidated by a single platform, vb i-shield®. vb i-shield® is a powerful IT platform that can integrate with and connect to all the airport peripherals and provide operational and analytical information to border officers through a monitoring workstation.

There is at all times an officer monitoring the ABC eGates with real-time access to the passport information, the traveller’s biometrics and the power to decide if either the passenger may or not cross the border.

Two CCTV cameras record all activity that occurs inside the eGate and in the immediate vicinity. These footage are streamed directly to the officer and may also be recorded for later visualization, if required.

In 2013 the existing eGates were upgraded to the latest vb i-match® version 5, which also process the Portuguese National Citizen card and normal paper passport in conjunction with a Register Traveller Program, providing enhanced level of functionality optimized to enable a quicker passage time and tighter security checks, thus providing both a better traveller experience and improved border integrity.

**vb i-match® components:**
5 IMPLEMENTATION OVERVIEW

5.1 Objectives

The project aimed to:

- Increase traveller throughput at the border
- Improve efficiency of human resources - the same number of border guards should process many more passengers
- Protect border integrity

5.2 Test Scenarios

To ensure that the technology would meet expectations, would have a positive impact on protecting the border and would also provide a positive user experience an extensive test program was designed in collaboration with the University of the Algarve. Some of the areas investigated included:

- False Rejection Rate (FRR) and False Acceptance Rate (FAR) analysis
- Overall passage times
  - Sub-process evaluation:
    - Document reading and validation
    - Biometric verification
- Overall performance of the eGate
- Tailgating and liveness detection
- ePassport validation (which certificates were able to be processed)
- Down time of the eGate
- Equipment long-term reliability and its ability to meet anticipated load and throughput for the lifetime of the hardware
- Integration testing with the airport and border control backend systems

5.3 Timeline

The project was implemented in different stages and airports in Portugal. Below you will find a breakdown of the project timeline implementation.

The deployment of the ABC eGates started with a pilot installation at Faro International Airport, in the south of Portugal, which handles a large number of tourists, mainly from the UK.

This pilot installation validated the business case and proved the reliability of the technology, leading to the mass deployment of ABC eGates to all Portuguese international airports.

Implementation Timeline:

2007
- Faro
- Lisbon T1
- Lisbon T2
- Funchal (Madeira)
2008
- Porto
- Lajes (Terceira - Azores)
- Ponta Delgada (S. Miguel - Azores)

2010
- Lisbon T1 (New Extension)

2013
- Lisbon T1

The project required the acquisition of 100 ABC eGates for deployment in continental Portugal, the Azores and Madeira, controlling both departures and arrivals.

5.4 Government Involvement

SEF is part of the Ministry of the Interior and is the project owner, with the operational responsibility for the border control, including the ABC eGates.

5.5 Vendor Involvement

This project was truly a partnership between SEF, the project owner, the airport authority and Vision-Box, the selected supplier.

Vision-box was the supplier chosen for the development, manufacture, deployment and support of an innovative biometric infrastructure with a widespread impact comprising of:
- Live Enrolment Kiosks for the Portuguese Electronic Passport, VISA, National ID Card and Residence Permits
- Portable biometric units for citizen enrolment and verification (biometric enrolment for the Portuguese ID card, electronic passport and VISAs for foreigners visiting Portugal)
- ABC eGates in all Portuguese international airports.

As of August 28th, 2006, the Portuguese Government began issuing electronic passports, which in addition to containing enhanced security features also contain a contact-less microchip. Vision-Box was responsible for developing and deploying Live Enrolment Kiosks for the Portuguese Electronic Passport, VISA and Residence Permits; Vision-Box also supplied portable biometric units for citizen enrolment and verification.

Vision-Box worked closely with the Ministry of Justice to build the whole life-cycle management solution for the National ID Card. Vision-Box’s role was focused on the deployment and support of Live Enrolment Kiosks and portable biometric enrolment units integrated with a centralized life-cycle system for the Portuguese National e-ID card. The digital biometric data captured are face image, fingerprints and signature.

At the same time as the national enrolment project was being implemented, Vision-Box started the deployment of the world’s first large-scale e-borders program. The project was led by Vision-Box from the early stages, kicking-off with a pilot installation at Faro International Airport. With the experience gained at this first ABC Trial, Vision-Box worked in cooperation with the airport authority (ANA) and SEF to deliver the implementation and deployment of more 100 gates at seven international airports in continental Portugal, the Azores and Madeira. The commitment to quality, accuracy and reliability make the Portuguese ABC eGates one of the best performing systems to date.
5.6 Airport Involvement

All the airports where ABC eGates were deployed are managed by the ANA Group. The ANA Group is the Portuguese business group responsible for the management of airports in continental Portugal (Lisbon, Porto, Faro and the Beja civilian terminal), in the Azores (Ponta Delgada, Horta, Flores and Santa Maria) and the Madeira (Funchal and Porto Santo) Autonomous Regions.

From the beginning, ANA and SEF worked together and in total alignment during this project. The project owner is SEF, however, ANA played a critical role in facilitating access to the different airports and also in terms of funding.

Just like SEF, ANA is very much committed to provide passengers with a positive experience, decrease queue time and provide a better service, so both organizations worked together towards the phased deployment of the ABC eGates at the different airports.

5.7 Circumstances requiring special development

Because of its innovative and new approach to border control the whole project required a special development. The Portuguese ABC success story is a ground-breaking implementation which established the ground rules for the countries that followed.

6 RESULTS / IMPACT STATEMENT

RAPID - ABC eGate usage figures up until June 2013, (over 4,000,000 passengers)

From the beginning the number of passengers using the ABC eGates has consistently increased, year by year. In May 2011, for the first time, more than 100,000 travellers crossed the border using RAPID in a single month.

6.1 Efficiency Improvements

Immediately following the deployment of ABC eGates at all Portuguese airports, the number of passengers that used the RAPID system was around 10% of all passengers. In 2009, that number increased to 14% and in 2012 it was over 25%. Over time, and due to the many improvements introduced, system availability has increased and, at the same time, the average passage time decreased.
6.2 Cost Avoidance / Savings %

Not applicable

6.3 Customer satisfaction

Although no formal customer satisfaction survey has ever been made the continuous increase in the ABC eGates usage is a good sign of customer satisfaction. Furthermore, there is a high incidence of travellers who, after using the ABC eGates once, tend to keep using it on subsequent trips.

7 PHOTOS, VIDEOS

Lisbon International Airport

Video

▶ [http://www.youtube.com/watch?v=pEQw5Ve8HYc](http://www.youtube.com/watch?v=pEQw5Ve8HYc)
8 LESSONS LEARNT

8.1 Pros & Cons

- Increase of passengers throughput
- Increased Security
- More efficient resource management and capacity planning. The increase in the number of passenger in the last six years has not led to an increase in the number of border police officers.
- The Portuguese ABC eGates implementation was the first time facial recognition against an ePassport was successfully deployed, which represented an important achievement and led to other countries considering implementing similar solutions.
- This was the first automated border control project in the world that did not require pre-enrolment
- Quicker border passage time and less queue time for passengers
- More efficient space management by the airport since the footprint needed for the ABC eGates is considered smaller than a traditional manual box.

9 BEST PRACTICES

With the introduction of ABC eGates all passengers going through the system are validated whereas in the manual control only a sample is validated. In Portugal the maximum number of ABC eGates that can be monitored by a single officer was found to be seven.