ENTRY/EXIT SYSTEM QUEUE BUSTING THROUGH PRE-REGISTRATION

Exploiting remote eMRTD verification to optimise traveller flow for the EU EES and beyond

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The Challenge

The European Entry/Exit System (EES) was conceptualised in the early 2000s to modernise border control in the Schengen Area, addressing concerns about illegal immigration, overstays, and terrorism. The EES will work alongside the European Travel Information and Authorisation System (ETIAS) to strengthen border security and migration management.

The need for third-country national travellers to undertake immigration checks prior to arrival at a different country is well understood. However, the introduction of EES does not come without concerns. These concerns are primarily related to the travel and tourism sectors, which are expected to bear the brunt of disruptions during the transition:

- **Potential for Travel Disruptions.** Airlines, airports, and travel organisations have raised concerns that the introduction of biometric checks at border crossings could result in significant delays at airports and other entry points. They fear that the additional time needed to capture biometric data (fingerprints and facial scans) will slow down traveller flow, especially during peak travel seasons.

- **Readiness of Border Infrastructure.** This is especially pertinent for land and sea borders, where implementing the required biometric capture technologies may be more challenging than at large, established international airports. Many have warned that insufficient testing and the complexity of setting up the new technology could lead to delays.

- **Economic and Cost Burdens.** Airlines, travel companies, transport operators and governments will need to invest heavily in upgrading systems and infrastructure to comply with EES standards. This is exacerbated by the strain the COVID-19 pandemic has already placed on these sectors.

The Solution

MOBILE PRE-REGISTRATION USING NFC + BIOMETRICS

In recent years the capability and availability of core technology to support the increased type of data that can be provided, prior to arrival at a BCP, has improved dramatically. This is due to the availability of smartphones and their ability to capture high-quality images and their integrated NFC chip reading.

TURN ANY SMARTPHONE INTO A KIOSK

All modern passports are equipped with a chip that adheres to the ICAO 9303 standard. This means that all information is digitally signed and encrypted and cannot be manipulated. Also, the face image is available at a high resolution, without any additional watermarks.

Therefore, they are much more suitable for face matching than the printed face image. Finally, a copied chip can be easily detected.

Also all modern smartphones are equipped with NFC and are often used for mobile payments. This capability can be used to read and verify the chips in identity documents, without the need for expensive kiosk hardware.

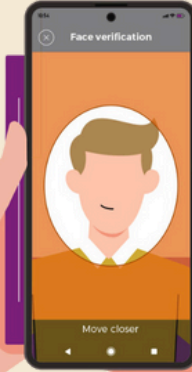**ınverid**

3 Easy Steps to IDV

1
Scan MRZ and Capture Visual Inspection Zone

2
Extract NFC Chip Data and Prove Authenticity

3
Prove it's you with Liveness Scan

NFC-based identity verification

Reading the chip digitally allows to verify the validity of the identity document and read the customer information without the risk of any OCR or typing mistake. In an identity proofing or preregistration process we can also verify via face matching, that the person owning the passport is currently holding the passport (holder verification).

Pre-registration of traveller details is not new and has been operating at the highest level of technology readiness for ten years. ICAO Doc 9303 chipped document and identity verification has been proven in multiple global deliveries, at scale, including Australian Advanced Passenger Processing, EU Settlement Scheme and the UK Immigration Electronic Travel Authorisation.

Frontex and border stakeholders through a project called AP4EES developed an initial trial smartphone app for EES pre-registration. The app, called QuickBorder for the pilot, was tested by Frontex with the Swedish Police, Arlanda Airport, and airline stakeholders in the summer of 2024.

Third-Country Nationals (TCN) have been used to registering for travel well in advance of arrival at a different country. In some instances, this is through the need to apply for a valid Visa. The leading technology in this field is ReadID as developed by Inverid.

ReadID

ReadID works on both Android as well as iPhone. It is used to read the chip, and our software at the server is used verify the data and send the validated information to the Member State who would then send to the Entry/Exit System. Smartphones' data storage must be regarded as unsafe, as a matter of principle.

Therefore, validation and processing must be done in the cloud, and not on the smartphone. Only on trusted devices, under strong control of the organisation such as a police force or border control agency, the software can be used client-only.

SmartCheck

The combination of remote document verification and biometric technologies is used to create Eurostar's self-service SmartCheck. Entrust, iProov, and Inverid have collaborated on SmartCheck to combat a 30% reduction in efficiency at St Pancras, where long-lasting effects from the COVID 19 pandemic and Brexit combined with station bottlenecks meant inefficient and labour-intensive pre-boarding checks reduced the number of passengers able to board Eurostar trains successfully.

Surveys showed that 84% of SmartCheck users would use remote pre-boarding options in the future.

The passenger downloads an app before they arrive at the station, where they read the chip of their passport and take a selfie for facial verification.

Then, when they arrive at St Pancras for their journey, instead of having to queue to show their ticket and passport for manual inspection, they simply walk through a SmartCheck biometric gate which scans their face using data collected in the app and proceed to the luggage security area.

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These cases have shown that remote identity proofing is possible at the highest security level, and all fully automated. The data gathered can be used by border forces to streamline processes at the border-crossing points, to enable early screening with respect to watch lists, and allows a faster simpler traveller experience ahead of border arrival.

With mobile pre-registration we can reduce border congestion. By streamlining low-risk traveller flow, border control agents can focus on persons-of-interest.

A Proven Process

THE APP4EES PILOT

The European Commission requested Frontex to initiate a pilot to implement the "APP4EES" concept to validate operational improvements that could be made to meet the Entry/Exit System requirements on travellers; notably, border processing times. This pilot project was run in conjunction with the Swedish Border Police, multiple airlines, Arlanda airport and other stakeholders. Inverid supplied the document verification and orchestrated the face verification technology that was integrated into the pilot app, known locally as QuickBorder, and back-end services.

The pilot project ran operationally for 6 weeks starting May 2024 and involved Frontex, Swedish Police, SAS, Emirates, Arlanda Airport and not least the travellers. The results were independently tested and implementation guidelines for future Member States to join the scheme have been generated. Our experience of the early testing results were very encouraging.

Following the success of the APP4EES pilot Frontex again opened a procurement process under the Transversal Engineering Framework. This project will implement improvements to the overall APP4EES solution, including a revised and rebranded app called "Travel to Europe" to take account of expected learnings from the initial pilot and allow additional Member States to benefit from remote, self-service pre-registration of traveller details in accordance with EES requirements and is open to a limited number of Member States to participate in.
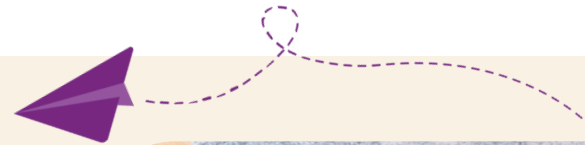
Future of EES

With the enhanced "Travel to Europe" mobile application now announced by Frontex, Member States will have the ability for remote registration to be utilised by Member States to reduce steps necessary and ease the burden and impact at Border Control Points once EES goes live. Successful implementation of EES can now be greatly assisted by the speedy adoption of the "Travel to Europe" app by Member States.

Joining the Travel to Europe app would appear to offer the fastest route to proven mitigation of many of the challenges all Member States face and Frontex requests Member States contact them to progress implementation. In addition, Member States can equip their border control officers with the same reading and verification technologies as utilised in the "Travel to Europe" app.

Our ReadID technology is available to integrate into your apps that border guards use for their complicated tasks in the field. Several police forces in Europe are already using this successfully.

If you are interested, contact Inverid for a demonstration of the ReadID document verification technology for smartphones utilised by the "Travel to Europe" app; and the ReadID standalone government queue-busting apps.

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Not all solutions in the market are of course made equal or at the same level of maturity.

Creating solutions with high conversion is not easy, as was shown in the Dutch DTC pilot.

The QuickBorder pilot has proven that a high conversion rate can be achieved if the right combination of mature technologies is used. Research and testing by multiple global bodies, including multiple Member States, have concluded that remote fingerprint enrolment and binding to a specific identity is not at a Technology Readiness Level for the quality required for EES, though the consensus of opinion is that the significant development in this area will make this available for integration into remote pre-registration activities in due course.

No time to lose

In this whitepaper we explained how mobile remote identity verification works and how it has had a transformational role in different industries.

The technology is mature, scalable, secure, and user friendly. We argued that the same technology can be used in the context of smart borders to complement activities at border crossing points, not to replace them.

From a security perspective, NFC-based remote identity verification is a mature, proven technology. The authenticity of passports can be established with 100% certainty, based on country certificates. This covers both the data inside the chip as well as the fact that it is an original passport.

None of our customers ever reported a false positive in millions of identity verifications, whereas optical verification can easily be fooled. We are more than willing to assist in setting up a proof-of-context to develop a joint understanding of how our technology can help to keep Europe safe and hospitable to those who are welcome.

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