STRENGTHENING THE COMMON BORDER

SITA SOLUTIONS FOR THE EU'S ENTRY-EXIT SYSTEM

Freedom of movement across the Member States of the Schengen Area is built on a complex geopolitical history. Policy and supporting systems must accommodate the rights and responsibilities of Member States, their current border programs and established migration routes.

The village of Baarle on the border between Belgium and the Netherlands testifies to Europe's convoluted and tumultuous geopolitical history. Divided into a patchwork of Belgian (Baarle-Hertog) and Dutch (Baarle-Nassau) territory, the village includes numerous exclaves of Belgian land within the Dutch province of North Brabant, some of which in turn contain Dutch exclaves (see figure 1).

This geographical quirk is merely a vignette in the tale of Europe's shifting borders. The changing colors that flew over the French city of Strasbourg, the main urban center in Alsace and a de facto capital of the European Union, are another well-known example of this territorial evolution.

Absorbed into Germany after the Franco-Prussian war of 1871, Strasbourg returned to France in 1918 upon the conclusion of the First World War. Alsace then changed hands twice more during the Second World War; after the fall of France in 1940, and during the country's subsequent liberation.

The supranational entity that arose from the war-torn continent has evolved into the European Union – at the heart of which are four fundamental freedoms:

- movement of goods
- movement of capital
- establishment and provision of services, and
- movement of persons.

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Fig 1. Map of Baarle

It is the latter that finds its most significant expression in the Schengen Area. Based upon the Schengen Agreement (signed in 1985 between Belgium, France, West Germany, Luxembourg and the Netherlands), the Schengen Area now consists of 26 European countries that have agreed to abolish internal border controls and impose a common visa policy. Oddities such as the village of Baarle – with its parcels of Dutch land ensconced in Belgian territory – would become curios of cartography, rather than a barrier to freedom of movement. The ability to traverse the continent from Lisbon to Helsinki without showing one's passport represented a concrete step in Europe's political, cultural and economic integration – with tangible benefits to European citizens seeking to travel for employment, study or leisure without the friction of border controls.

The rise of a borderless Europe

In the twenty-five years since the creation of the Schengen Area, Europe's open internal borders have been challenged by multiple internal and external shocks. The migrant crisis that reached its zenith in 2015 demonstrated the challenge of controlling and managing flows of refugees. More recently, as Member States re-imposed internal border controls as they scrambled to control the coronavirus pandemic. This led to exhortations from the European Commission to cooperate and coordinate border management policy at the EU level. These have underlined the importance of a strong frontier in order to protect freedom of movement within the Schengen Area.

By introducing a common watchlist and intelligence sharing system (the Schengen Information System – SIS) and aligning visa policy (managed through the Visa Information System – VIS), the EU has sought to ensure robust and consistent checks on travelers along the entirety of Europe's external border. But this system has gaps and requires modernization to effectively process non-EU citizens, known as Third-Country Nationals (TCNs). The use of passport stamps to confirm entry and exit of visa holders is at risk of forgery. A lack of consistent biometric data capture and verification across all borders – be they land, air or sea – introduces the potential for fraudulent use of travel documents. Decisions to admit visa-exempt travelers are made on the basis of alltoo- fleeting interactions with border guards who are often under significant pressure to ensure the flow of travelers at congested border points.

Strengthening the common border

In order to address these gaps, the EU has embarked upon two complementary projects:

- The European Travel Authorization System (ETIAS) will require visa-exempt TCNs to apply for visa waivers and will enable authorities to have greater control over the admissibility of such travelers.
- The Entry-Exit System (EES) will apply to all TCNs and will enable the consistent collection and recording of biographic and biometric data at the external border of the Schengen Area.

The introduction of the EES addresses the issue of a traveler entering the Schengen Area in Paris and leaving via Amsterdam, with the only trace of such a journey residing in the traveler's passport and the (disconnected) national immigration systems of France and the Netherlands. In a world where transnational crime, illegal migration and terrorism represent continuing threats to security and prosperity, and in the wake of a devastating pandemic, the imposition of robust and rigorous border control operations across the common European border is critical.

The introduction of the EES, however, poses challenges to Member States in the smooth and effective management of their border operations. These challenges fall mainly into three areas:

- Timely facilitation of travelers
- Capture of high-quality biometric data, and
- Integration with new and existing border management systems.

Timely facilitation of travelers

The additional requirement to collect biometric and biographic data for all TCNs will increase time spent at the border crossing point, potentially creating queues and unfavorably impacting upon traveler experiences. While the temporary reduction in traveler numbers relating to COVID-19 has alleviated the burden on travel infrastructure, new social-distancing guidelines will require authorities to avoid bottlenecks at border crossing points to minimize the risk of infection.

Many government authorities and transport infrastructure operators have introduced automated border control (ABC) equipment in order to reduce pressure on border agents and improve the speed of facilitation. The widespread roll-out of e-Passports in the last 10 to 15 years is a key enabling technology for the deployment of ABC gates for traveler clearance. Access to ABC gates is typically limited to a country's own nationals and other low-risk travelers from trusted destinations. In parallel, many governments have sought to automate the task of data collection (both biometric and biographic) through use of ABC kiosks. Many travelers report greater satisfaction when using these self-service touchpoints to clear immigration. The liberation of border guards to focus on travelers requiring greater scrutiny enables these highly-trained officers to make the best use of their time and skills.

SITA's extensive experience in the deployment of ABC solutions across both EU and non-EU states enables us to identify the critical success factors concerning the use of gates and kiosks. First, the equipment itself must be designed to satisfy the demands of purchasers for reliability, modularity and service availability.

With over 5,500 self-service kiosks deployed worldwide, SITA has significant expertise in the design, manufacture and operation of ABC kiosks in order to address these demands. SITA's latest generation of kiosks – SITA ABC kiosks (figure 2) – is designed for future upgrades to address changing requirements, such as the use of new biometric capture devices or the introduction of a printer to provide receipts to travelers.

Moreover, SITA's existing support network – with experience of supporting customers in over 200 countries and territories – can be leveraged in order to ensure the ongoing maintenance and servicing of kiosks, providing customer peace of mind.

Fig 2. SITA Automated Border Control (ABC) kiosks

SITA's ABC gate solution is also based upon robust engineering that can be modified to meet customer-specific needs – for example, fingerprint verification in the gate. Millions of travelers have passed through ABC gates supplied by SITA to airports worldwide and operators have benefited from the exemplary reliability of the gate hardware. SITA's two-step process also enables parallel processing of travelers. Face capture and matching using a high-resolution camera begins the moment a traveler enters the gate, while the next traveler can begin scanning their travel document in readiness to enter. This accelerates throughput and provides a walk-through experience that saves on average five seconds in traveler processing time (figure 3).

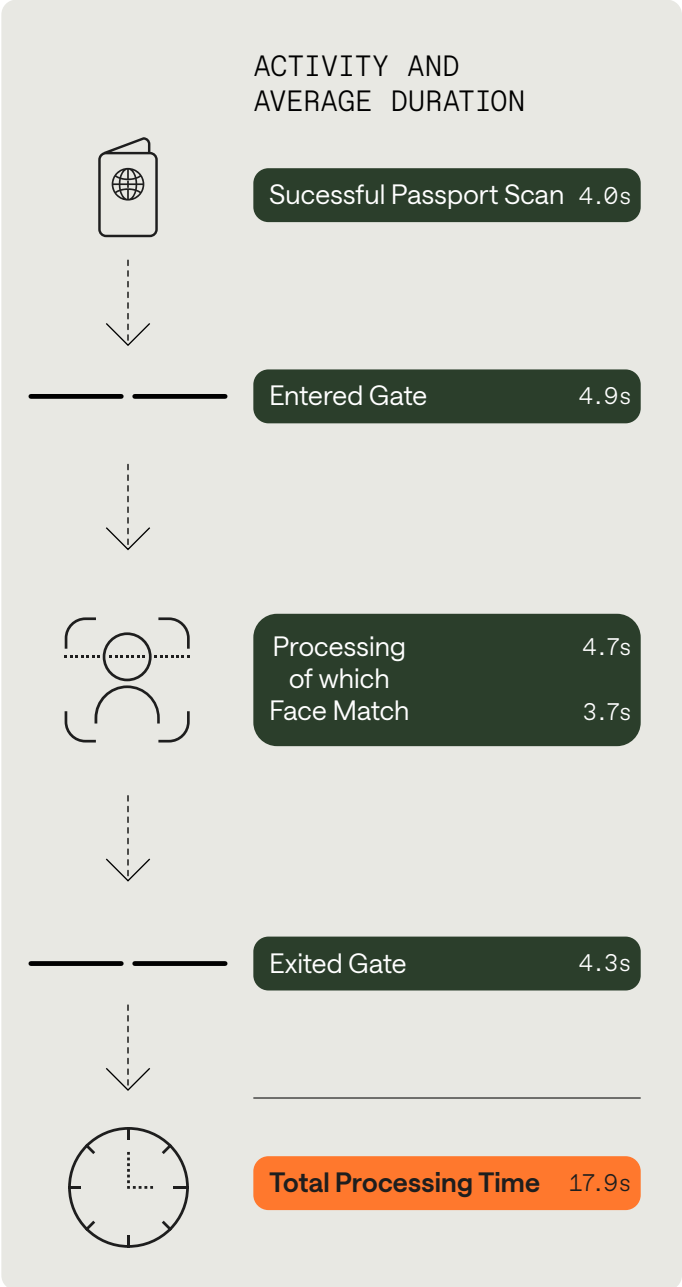
SITA's ABC gates and kiosks minimize the use of moving parts in order to ensure the longevity of equipment and reduce preventive maintenance. To avoid the drawbacks associated with moving cameras, SITA's equipment uses high-resolution cameras to guarantee the fidelity of face images and ensure that they can be used for speedy enrolment, and reliable verification.

From a traveler perspective, ease of use is critical to ensuring that as wide a population as possible can use self-service equipment and realize its full benefits. SITA's ABC gates and kiosks are designed with accessibility at the forefront – including compliance with regulations covering the use of equipment by people with disabilities. The use of graphics and signal lights to prompt passport placement and biometric data capture also enhances the user experience. But the equipment itself is only part of broader efforts to maximize ease of use. SITA has worked extensively with infrastructure operators in order to ensure that traveler education does not start at the self-service device – but is part of a journey that begins with video instructions during travel, signage in the arrivals area and the deployment of trained personnel to provide support to travelers.

For the EU's EES use case, SITA proposes to leverage the biometric data that are captured at the kiosks in order to expedite subsequent processing. For example, first-time arrivals will be able to be identified during the manual check through capture and matching of their face image with the data provided at the kiosk. This will enable border agents to speedily identify and confirm the enrolment of these first-time travelers.

Second-time TCN arrivals in the Schengen Area are expected to confirm their registration in the Central EES system at the SITA kiosk, updating their travel record as necessary, confirming their biometric data and making declarations specific to their journey. The biometric data can then be used to identify the traveler at the ABC gate – enabling them to proceed directly through the SITA gate by facial recognition alone. This innovative approach is expected to significantly improve processing times at border crossing points for second-time TCN arrivals compared to traditional processing.

Fig 3. SITA ABC Gate Processing Times



Capture of high-quality biometric data

The challenge of capturing biometric data at the quality levels stipulated by the EU introduces an additional complexity to the enrolment process for first-time TCN arrivals. SITA has engaged with government agencies when providing ABC solutions, and we have made significant efforts to ensure the fine-tuning of face capture and matching algorithms. This ensures that the process works for the widest possible range of travelers. The success of such collaboration can be evidenced from the excellent matching rates that have been realized across a number of SITA projects. This includes our supply of solutions for US Exit, where success rates of over 99% are achieved across a diverse traveler cohort.

The biometric quality standards prescribed by the EU leave less latitude to Member States to be able to fine-tune their solutions. However, SITA's experience of working with transport infrastructure operators can be leveraged to ensure an appropriate environment for face image capture. For example, optimizing brightness though re-location of lights and the use of screens on windows to diffuse sunlight can make a significant difference in the acquisition of high-quality face images. Providing suitable guidance to travelers on their head position and facial expression also has an impact – and improves the traveler experience.

From a technical standpoint, SITA uses high-quality cameras with superior resolution and lenses in order to ensure the capture of compliant face image data from travelers of all heights – including children and wheelchair users. These measures preclude the need to employ moving cameras, which introduce mechanical reliability issues, and high-power lighting, which can disorient travelers.

For mobile use cases, SITA recognizes the additional challenge of acquiring high-quality biometric data in unconstrained environments – such as on coaches or trains. Here, the need to rapidly enroll travelers and ensure a good traveler experience translates into the implementation of flexible workflows to revert to the use of a verified passport chip image for enrolment in exceptional cases.

Fingerprint capture to the quality level required by the EU can also present challenges. Travelers are often less familiar with providing fingerprints in self-service environments, and common traveler habits (like applying hand cream after arrival to alleviate dry skin) can interfere with compliant fingerprint capture. Manual workers and the older population are also more likely to have difficulties with enrolling compliant fingerprints. SITA's technology independence permits the selection and use of best-of-breed biometric devices for ABC gates and kiosks, ensuring that we can deliver the most up-to-date solutions available. Moreover, the use of dynamic quality criteria ensures that fingerprint capture is always of the highest possible quality, without causing unnecessary delay to the traveler through repeated attempts to enroll.

Integration with border management Systems

Maximizing the value that will be delivered by the introduction of EES necessitates an approach that goes beyond the initial acquisition of gates, kiosks and biometric devices. Member States have an opportunity to transform their border operations – primarily driven by the intelligent integration of new and existing border management systems. Governments are witnessing the emergence of the border control ecosystem (figure 4) – an environment where government and industry solutions must integrate effectively to address customer needs. Making best use of new and existing data sources is critical to operating coherently and ensuring efficacy, consistency and robustness.

SITA solutions offer the ability to create a coherent and harmonious border control ecosystem. The coordinated use of SITA products, such as SITA Border Management System for manual processing and SITA ABC Gates and Kiosks ensures a rigorous approach to traveler processing across all border crossing points. The ability to centrally control and configure endpoints ensures that border operations can flex to address emerging requirements – avoiding complex and manual intervention when new business processes are implemented.

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Fig 4. The Border Control Ecosystem

The integration of the border control point with existing government and international systems – such as traveler information systems (providing Advance Passenger Information and Passenger Name Record data), watchlists, identity databases, national document registers and visa management databases – is also critical to ensuring that travelers can be processed with the richest possible set of data upon which to take decisions to admit or refuse entry. SITA's unrivalled expertise in the provision of such solutions – to over 45 governments worldwide – means that we have a considerable understanding of the complexity – and the benefits – of such an integrated approach.

At the frontier of an opportunity

Implementing the EES regulation poses challenges and opportunities to Member States and transport infrastructure operators. As a trusted partner to governments for over 20 years, SITA's understanding of border control operations is brought to bear on both product and solution offerings, ensuring that customers benefit from SITA's extensive experience in this domain and unique position as an expert solutions provider to governments and the aviation industry alike.

ABC gates and kiosks can alleviate the burden of the additional capture of biometric and biographic data. They must be deployed appropriately as part of an overall solution that delivers optimal benefit to border control operations. Accessibility, ease of use and rapid biometric capture are all critical to timely traveler facilitation. Moreover, the application of EES to all modes of transport – land, sea and air – requires solutions that are multi-modal and flexible, while still being robust. Leveraging biometric data across these touchpoints is essential to enabling a contactless and efficient traveler journey.

SITA's breadth of capability, knowledge and experience mean that we can deliver comprehensive border control solutions. Our dedication to continuous improvement and product enhancement provides assurance to Member States that SITA solutions will be viable for years to come – and will be able incorporate the latest innovations in border management.

These SITA solutions will enable European governments to comply with the EES regulation and participate in the collective strengthening of their external border.

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