

New Technologies for Border Controls in Europe

Rapidly increasing mobility, especially with regards to air traffic, poses new challenges for the border agencies in Europe. New technologies may help to manage the movement of people and ensure security. As a Schengen member, Switzerland can benefit from these developments. However, a number of adaptations are required.

By Julian Kamasa

One of the main purposes of the Schengen Area is to provide for open borders in Europe. Today, it encompasses all EU member states except the UK and Ireland, which continue to conduct border controls. Nevertheless, the UK makes use of the Schengen Information System (SIS). The EU members and future Schengen member states Bulgaria, Croatia, Romania, and Cyprus continue to implement border controls. Bulgaria and Romania have been making full use of the SIS since 2018. Iceland, Liechtenstein, Norway, and Switzerland are member states of the European Free Trade Association (EFTA). As such, they enjoy associate status in the Schengen Area and thus unlimited access to the SIS.

The Schengen Area of 26 participating states without border controls is predicated on a number of preconditions, including that the external borders must offer sufficient security and that police authorities' access to a central database must function smoothly. These tasks have become more and more complex in recent years due to rather strong migration movements, transnational crime, international terrorism, and a constant increase of tourist numbers.

Increasing Mobility Needs

Both in quantitative and in qualitative terms, the national border agencies in Europe are confronted with new challenges,



Eight automated passport control gates can be used voluntarily at Zurich Airport since 2017 for entry and since 2018 five of them for exit. *KAPO Zürich*

which they are tackling in various ways. For instance, in autumn of 2015, following an increase of migration and terrorist attacks, numerous European states made use, in line with their own requirements, of certain regulations in the Schengen Borders Code that allow for temporary border controls to be introduced for up to six months (cf. Fig. 1). These temporary measures have since been renewed every six months based on the

specified rationale – a serious threat to domestic security or risk of terrorism – which means that these measures now appear to be permanent rather than temporary.

Migration patterns vary between regions and may trigger strong national defensive mechanisms. Tourists, on the other hand, are very welcome in Europe, mainly based on economic considerations. Nevertheless,

Temporary identity checks at border crossings within the Schengen Area	
Austria	Land travel from Slovenia and Hungary, temporary controls on entries from Italy and Slovakia (since 16 September 2015, until 12 May 2020)
Denmark	Land and sea travel from Germany and Sweden (since 4 January 2016, until 12 May 2020)
France	State of emergency affecting all border crossings, mainly air travel (since 14 December 2015, until 30 April 2020)
Germany	Land travel from Austria, temporary controls of air travel from Greece (since 13 September 2015, until 12 May 2020)
Norway	All border crossings, with particular attention on sea travel from Germany, Denmark, and Sweden (since 26 November 2015, until 12 May 2020)
Sweden	No specific delimitation, may affect all border crossings (since 12 November 2015, until 12 May 2020)
Source: EU Commission (as of 12 November 2019)	

this movement of people, which is increasing every year, must also be managed. Increasing wealth in populous countries such as India or China is leading to a constant rise in the number of entries from non-member countries. The EU estimates that by 2025, it will see 302 million cross-border movements by 76 million citizens from third countries, to which must be added travelers with EU/EFTA passports, which are also checked at the Schengen Area's external border crossings. Given the limited scalability of the work done by humans at a counter in terms of spatial and organizational requirements, using new technologies such as electronic passport checkpoints could relieve pressure on the border agencies.

Technology-Backed Border Controls

In the following, for the purposes of border entry and the related identity check, a crucial distinction will be made between passengers with EU/EFTA passports and members of third countries, even though the same technology could be applied for border controls in both cases. EU and EFTA citizens have for some years had the option of using automatic passport checkpoints, known as "eGates". The UK has already been checking biometric data with image recognition technology since 2008 at 264 electronic checkpoints, positioned at more than 15 air and rail traffic locations. In view of the fact that entries have been increasing annually on average by 4 million travelers since 2009, the eGates have certainly proven their practical efficacy. In 2018, about half of the 122 million travelers with EU or EFTA citizenship made use of this option.

The only external Schengen borders that Switzerland must police are at its international airports. In September 2017, eight

checkpoints were installed for testing purposes at Zurich Airport that may be voluntarily used by adult travelers arriving with biometric EU/EFTA passports from non-Schengen countries. Based on this successful test, eGates are now also used at departure. The travel document, which incorporates a microchip, is placed on a scanner that not only verifies its validity, but also checks for outstanding arrest warrants for the person in question. Following successful verification, image recognition is used to compare the face with the passport data. The *Kantonspolizei* (Zurich Cantonal Police), which is responsible for security at Zurich Airport, is only involved if the electronic checkpoints refuse entry due to technical failure, an outstanding arrest warrant, or suspected forgery or theft of the travel document.

The same method could be used for third-state citizens with biometric passports seeking entry to the Schengen Area. However, while the data of air passengers with EU/EFTA passports are deleted immediately after entry into or departure from the Schengen zone, the data relating to citizens of non-member states will be electronically stored from February 2022 onwards. Until now, travelers arriving from third states for short stays (90 days) have received manual stamps in their travel documents, which involved no storage of data and thus facilitated a simple identity check process. The disadvantages of this streamlined process are that manual stamps are prone to forgery and error, but mainly that no register is kept. Thus, it is not possible, for example, to exactly determine in retrospect where and when a person entered the Schengen Area from a third state. There is also the risk that travelers can disappear more easily because they leave fewer traces. Accordingly, it is

difficult to estimate the number of third-state citizens whose permits have expired. Rough estimations assume that there are between two and four million such people living in the EU.

In 2013, the EU Commission proposed a package of measures under the label "Smart Borders" that includes an Entry/Exit System (EES) for short-term entries designed to manage these risks at the external borders of the Schengen Area. Specifically, the EES regime aims both to register the biometric personal data (facial image and four fingerprints) of third-state citizens using an electronic stamp and to store this personal data in a central electronic EES dossier. This facilitates the unequivocal identification of individuals as well as the reconstruction of the entry path, if necessary. The regulation stipulates that such data be retained for three years after departure, or for five years in cases of non-departure, and deleted after the end of the data retention period. Following the adoption

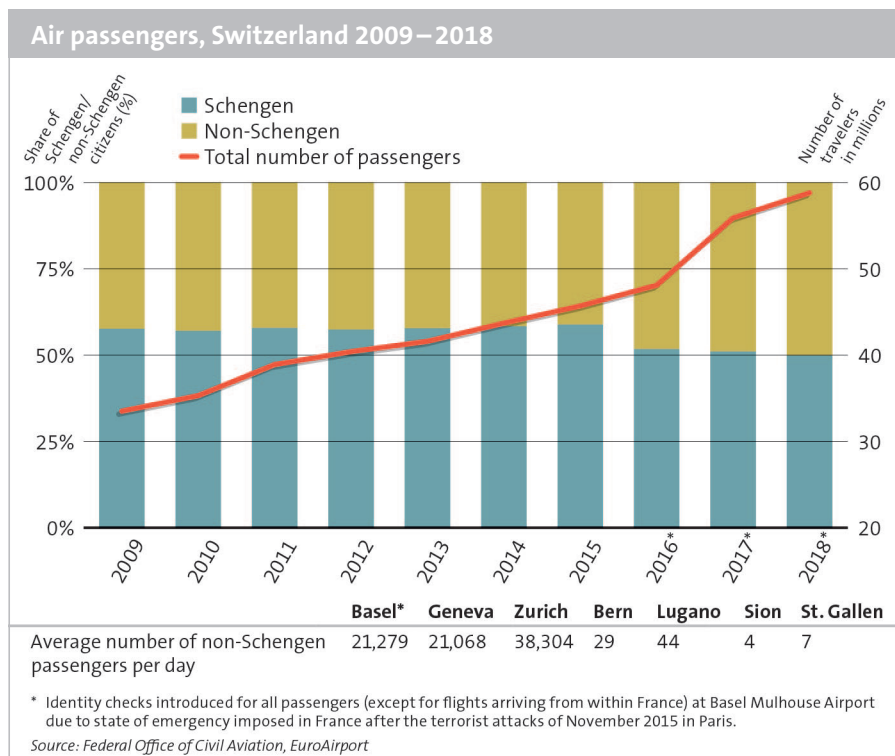
EU and EFTA citizens have for some years had the option of using automatic checkpoints.

of the draft law by the EU parliament in December 2017 and a two-year period for harmonization of legislation, EES is expected to enter into use at all external Schengen borders from February 2022 onwards – including at Swiss airports.

Data Protection

Initially, the Commission's first proposal for "Smart Borders" was highly controversial in the EU parliament and also in the Council of the European Union, mainly for reasons related to data privacy. While a parliamentary majority for the proposal seemed unlikely, given the far-reaching nature of the plans for data acquisition for all travelers and for long-term data storage, certain countries that had been immediately affected by terrorist attacks, such as France and Belgium, demanded a ten-year data retention period. In addition to the Commission and the EU parliament, Germany was among those opposed to long-term data retention and championed data protection, despite also having experienced many terrorist attacks.

A number of measures were introduced to assuage concerns over data privacy. For instance, the Commission diluted the overall package and removed certain controversial elements, such as the registration of fre-



quent travelers (National Facilitation Programme, NFP), from the mandatory legal regulation. It now leaves it to the states to implement these aspects on a voluntary basis. Based on cost-benefit considerations, Switzerland for example has decided not to introduce the NFP.

A financial and technical study was complemented in 2015 by a practical test, seen largely as a symbolic measure, that involved a broad range of relevant institutions and actors. The test was carried out by the European IT agency eu-LISA. It comprised 12 states with 18 air, sea, and land traffic border crossing points and involved 350 border guards as well as 58'000 volunteer travelers from non-member states. At the institutional level, the test incorporated not just the member states and the responsible EU agencies, but also the European Data Protection Supervisor (EDPS), Frontex, and the European Union Agency for Fundamental Rights. Ultimately, the development of the EU's General Data Protection Regulation (GDPR) in 2015 may also have served as a confidence-building measure. Among other elements, it calls for citizens to gain more control over their personal data while requiring that corporations take on more responsibility. The EU Commission requires that during and after the implementation of EES, national data protec-

tion authorities should carry out regular inspections.

In Switzerland, too, data protection played a key role in connection with the EES regulation. Under the Schengen Association Agreement (SAA) approved by the Swiss electorate in 2005, Switzerland as an associated state in the Schengen Area is committed to the mandatory dynamic adoption of the legal developments of the Schengen Acquis. The federal decision to approve this regulation was accepted in spring of 2019 by both chambers of parliament. While the Council of States supported its implementation unanimously, fundamental criticism over data protection was voiced in the National Council. Here, the proposal was adopted, with 23 votes opposed to it from the left and right of the political spectrum. This result may be explained by the fact that the desire for good relations with the EU prevailed among the parties that emphasize the importance of data protection, while domestic security is a paramount consideration among EU-skeptic members of parliament. A crucial factor may have been that data protection is traditionally held in high esteem both at the cantonal and the federal levels, and that no Swiss authorities will store EES dossiers; rather, they will transmit the data via a standard national interface to the central European system.

Technical Challenges

At the federal level, the State Secretariat for Migration (SEM) plays a key role in the legal implementation and in transmitting requirements and directives to the respective border authorities of the cantons in question. The core challenges here are not so much political in nature, but rather relate to technical and organizational issues as well as state policy. To meet technical challenges in connection with the collection of biometric data of third-state arrivals, the staff responsible for border controls at airports must be trained accordingly. This includes the correct way of creating EES dossiers and changes to the underlying legal framework that must be internalized by the authorities. The partial automation and digitization of border control, which is among the EES goals, will raise the professional demands of the responsible personnel (border guards and cantonal police forces) and thus enhance their relevance.

At the organizational level, the spatial dimensions of airports are a key factor. In view of the increase in passenger numbers, which have nearly doubled at Swiss airports in the past decade from 33.5 million in 2009 to 58.8 million in 2018 (see illustration), technical aids for screening passengers to and from third countries may also relieve the burden on the Swiss authorities. Thus, in Zurich, the construction of an additional terminal has been brought forward to ensure conformity with EES. eGates are also expected to be introduced, which may require spatial and organizational adaptations. At Basel's airport, which is located on French territory, the situation is a complex one. For a number of years, the EuroAirport has been noticeably exceeding its spatial capacity, a situation that is further aggravated by the state of emergency that France proclaimed in 2015 and which has seen a return of border controls.

The example of the EuroAirport shows that installing eGates should be accompanied by holistic spatial planning considerations and is likely to be in line with the commercial interests of airport operators. When combined with the introduction of new technologies, optimization of spatial capacities ultimately facilitates efficient implementation of border controls. The resulting positive effects can be seen at many levels. For instance, a location may become more attractive as a hub, more space may be freed up for commercial use, and travelers may be able to spend more time on consumption in the tax-free zone beyond the border control checkpoint.

In addition to the efficient use of spatial capacities, given the desire for maximum user-friendliness in carrying out border controls, passenger management plays a key role. Passengers must be given clear guidance as to which type of travel document they can use to transit which type of border control. Tests carried out at Frankfurt Airport have shown that EES-compliant identity checks on average take one minute longer than those without EES. In terms of time-saving considerations, it would therefore make sense to check citizens of non-member states at different desks or eGates than the EU and EFTA passengers. At airports that are less busy such as Bern, Lugano, Sion, or St. Gallen, passport checks will first be carried out at a booth window, since eGates are too expensive. Checkpoint booths can also be EES-compliant if they are equipped with a camera and fingerprint reader.

Considerations of state policy, such as Switzerland's federal structure, are significant for the implementation of EES, which manifests itself in particular at airports. Each of the country's three main airports handles border control responsibilities differently. While the cantonal police is in charge of border controls at Zurich Airport, in Geneva, it is the Swiss Border Guard that serves as the first line of control, with the cantonal police having only a subsidiary role. At the EuroAirport in Basel, the Swiss Border Guard corps carries out identity checks in cooperation with the French border authority, the *Police aux Frontières* (PAF). This means that training of the staff members responsible for border controls in connection with EES takes place in accordance with the respective responsibilities at the airports and not in certain units of a department. Therefore, the SEM will implement EES together with

authorities at all state levels, which will involve a great deal of effort in a federal system.

Need for Adaptation

The modernization of border controls and associated systems will comprise numerous important aspects of Schengen treaties. Further legal developments relating to the Schengen Acquis are still undergoing consultation processes in Switzerland. On the one hand, these relate to the introduction of new systems such as the European Travel Information and Authorisation System (ETIAS) and the overhaul of the Schengen Information System (SIS II). These necessary adjustments will very likely result in new systems that are technically and logistically more complex than EES. In order to allow the border authorities to carry out their duties effectively in the future, dynamic and flexible adaptations to ongoing and future development will be required. Complexity is likely to increase in the future, and will bring growing challenges for personnel.

Thus, a partial automation of border controls with a fairly comprehensive scope of human control will not replace the work of the responsible authorities, but rather complement it. Neither is there any cause for concern from an ethical point of view, at least for the time being. Technological support for border controls is transparent, explicable, and not subject to a fully autonomous decision-making process. Nevertheless, a development leading to complete automation cannot be entirely excluded. Identity checks at borders of all kinds have always been geared towards filtering out individuals considered to be risks from the broad mass of people. If this is done with automated systems and using Artificial Intelligence, Europe is likely to

be confronted with a conflict of objectives between ethical principles and a desire for maximum security. Such developments should always be considered in light of the fact that absolute security can never be achieved even with new technologies.

In this context, it is also fair to note that the EES is of questionable efficacy in security terms, contrary to the communications of the EU Commission. In particular, it is likely that this new feature will mainly heighten the deterrent potential, eliminate ambiguity in identity checks, and contribute to a general modernization of border controls. Significant security gains would require more comprehensive adaptations at the national and supranational levels. In the context of terrorism, the perpetrators have usually proven to be citizens of the countries in question and were in fact often registered as security risks in certain databases, but were overlooked due to blind spots in preventive policing attributable to a lack of information exchange. Thus, in Switzerland, too, EES could give an impetus towards complementing both the protection of Europe's external borders and the Schengen Information System through a national harmonization of cantonal police data. In the coming years, numerous systems will become obsolete, creating an opportunity to replace these systems in a sensible, sustainable, intelligent and efficient way and adapting them to complex security requirements.

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