FRONTEX

Guidelines for Processing of Third-Country Nationals through Automated Border Control

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of Operational Cooperation at the External Borders
of the Member States of the European Union

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Contents

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7. include the Frontex Research and Development Unit contact details at the end of the document.

Acknowledgements[1]

This document was prepared by the Research and Development Unit (RDU) of Frontex in close cooperation with experts from a number of European Union Member States which, at the time of writing, were operating and/or testing automated border control systems processing third-country nationals at selected external border crossing points of the EU. Frontex would like to particularly acknowledge the work of Pasi Nokelainen, System Manager for Border Checks at the Finnish Border Guard, who took the lead in developing these guidelines. It would also like to thank the following persons who participated in the working group on Automated Border Control and contributed to this document

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1 Member State experts and Frontex staff have been acknowledged in alphabetical order according to the first letter of their surnames.

About Frontex

The mission of Frontex is to facilitate and render more effective the application of existing and future European Union measures relating to the management of external borders, in particular the Schengen Borders Code. As such, Frontex is to play a key role in analysing and defining the capability needs in border control and in supporting the Member States in development of these capabilities. Frontex also provides qualified expertise to support the EU policy development process in the area of border control.

One of the core objectives of the Capacity Building Division is to drive the process of harmonisation and standardisation of the management of the EU external borders by the Member States, by promoting greater interoperability. As part of the Capacity Building Division at Frontex, the RDU is tasked with the development of best practices and procedures, both technical and operational, for border control. The RDU proactively monitors and participates in the development of research relevant for the control and surveillance of external borders and keeps the Member States and the European Commission informed concerning technological innovations in the field of border control. In particular, one of the RDU's main areas of work is the exploration of the potential offered by new border management technologies to meet the dual objective of enhancing security while facilitating travel.

Acronyms and abbreviations

ABC	automated border control
BCP	border crossing point
BPOG	'Best Practice Operational Guidelines for Automated Border Control (ABC) Systems'
BPTG	'Best Practice Technical Guidelines for Automated Border Control (ABC) Systems'
EES	entry/exit system
eu-LISA	European Agency for the Operational Management of Large-Scale IT Systems in the area of Freedom, Security and Justice
e-MRTD	electronic machine-readable travel document
EU	European Union
EU/EEA/CH	European Union, European Economic Area, Switzerland
GPVIS	'Good Practices in Practical Implementation of the Visa Information System at EU Borders'
ICAO	International Civil Aviation Organisation
MRTD	machine-readable travel document
RT(s)	registered traveller(s)
RTP	registered traveller programme
SBC	Schengen Borders Code
TCN(s)	third-country national(s)
VE	visa exempt
VH	visa holder
VIS	Visa Information System
WG	working group

Glossary

The definitions included in this section are based on a number of relevant glossaries, dictionaries and documents, namely the *OECD Glossary of Statistical Terms*, the *Oxford Language Dictionary*, the European Commission 'Proposal for a regulation of the European Parliament and of the Council establishing an entry/exit system (EES)', the European Commission 'Proposal for a regulation of the European Parliament and of the Council establishing a registered traveller programme', the European Union 'Schengen Borders Code', the International Civil Aviation Organisation (ICAO) 'Doc 9303 Machine Readable Travel Documents', the ICAO 'Guidelines for Electronic Machine Readable Travel Documents and Passenger Facilitation', the ICAO 'Machine Readable Travel Documents Glossary,' the ICAO 'A Primer on the ICAO Public Key Directory: White Paper' and the Treaty on the Functioning of the European Union (for further details see reference list in Annex I). Finally, a number of definitions have been devised and agreed upon by the Frontex working group on Automated Border Controls.

Automated border control (ABC) system: an automated system which authenticates the electronic machine-readable travel document and/or token, establishes that the passenger is the rightful holder of the document and/or token, queries border control records and then determines eligibility of border crossing according to the predefined rules.

Biometric capture: the process of taking a biometric sample from the user.

Biometric verification: the process of confirming the identity of the holder of an e-MRTD by the measurement and validation of one or more unique properties of the holder's person.

Border checks: the checks carried out at border crossing points in accordance with the Schengen Borders Code (SBC), to ensure that persons, including their means of transport and the objects in their possession, may be authorised to enter the territory of the Member States or authorised to leave it. See also 'Border crossing point (BCP)'.

Border crossing point (BCP): any crossing point authorised by the competent authorities for the crossing of external borders.

Border guard: any public official assigned, in accordance with national law, to a border crossing point or along the border or the immediate vicinity of that border who carries out, in accordance with the SBC and national law, border control tasks.

Certificate: an electronic document establishing a digital identity by combining the identity name or identifier with the public key of the identity, a validity period and an electronic signature by a third party.

Cost-benefit analysis: technique for deciding whether to make a change. As its name suggests, it compares the values of all benefits from the action under consideration and the costs associated with it.

Database: an application storing a structured set of data and allowing for the management and retrieval of such data.

Entry/exit system (EES): an information system enabling storage of entry and exit data of third-country nationals crossing the ex-

ternal borders of the Member States of the European Union.

E-gate: one of the components of an ABC system, consisting of a physical barrier operated by electronic means. This covers different types of e-gates: a single-door e-gate is a system with one barrier to pass. A double-door e-gate is a system with an entry and an exit barrier (man-trap).

Electronic machine-readable travel document (e-MRTD): a machine-readable travel document equipped with an electronic contactless chip according to the International Civil Aviation Organisation (ICAO) Doc 9303. See also 'Machine-readable travel document'.

E-passport: a machine-readable passport containing a contactless integrated circuit chip within which is stored data from the passport data page, a biometric measure of the passport holder and a security object to protect the data with public key infrastructure cryptographic technology, and which conforms to the specifications of ICAO Doc 9303, Part 1.

EU citizen: any person having the nationality of an EU Member State, within the meaning of Article 20(1) of the Treaty on the Functioning of the European Union. See also 'Persons enjoying the Community right to free movement' and 'Freedom of movement (right to)'.

First-line check: default check carried out at border crossing points to ensure that travellers are authorised to enter the territory of the EU/EEA/CH. See also 'Second-line check'.

Freedom of movement (right to): a fundamental right of every citizen of an EU Member State or another European Economic Area country or Switzerland to freely move, reside and work within the territory of these Member States. See also 'EU citizen' and 'Persons enjoying the Community right to free movement'.

Interoperability: the ability of several independent systems or subsystem components to work together.

Machine-readable travel document (MRTD): an official document, conforming with the specifications contained in ICAO Doc 9303 (e.g. passport, visa), issued by a state or an organisation which is used by the holder for international travel (e.g. passport, visa) and which contains mandatory visual (eye-readable) data and a separate mandatory data summary in a format which is capable of being read by machine.

Member State: a country which is a member of the European Union. Within the context of the present guidelines, the term also applies to those countries that, not being EU members, are part of the Schengen area. See also 'Schengen area'.

Operator: the border guard officer responsible for the remote monitoring and control of the ABC system. The tasks performed by the operator typically include: (a) monitoring the user interface of the application; (b) reacting upon any notification given by the application; (c) managing exceptions and making decisions about them; (d) communicating with the assisting personnel for the handling of exceptions at the e-gates; (e) monitoring and profiling travellers queuing in the ABC line and using the e-gates, looking for suspicious behaviour in travellers; and (f) communicating with the border guards responsible for second-line checks whenever their service is needed.

Persons enjoying the Community right of free movement: according to Article 2(5) of the Schengen Borders Code these are: (a) Union citizens within the meaning of Article 20(1) of the Treaty on the Functioning of the

European Union and third-country nationals who are members of the family of a Union citizen exercising his or her right to free movement to whom Directive 2004/38/EC of the European Parliament and of the Council of 29 April 2004 on the right of citizens of the Union and their family members to move and reside freely within the territory of the Member States; and (b) third-country nationals and their family members, whatever their nationality, who, under agreements between the Community and its Member States, on the one hand, and those third countries, on the other hand, enjoy rights of free movement equivalent to those of Union citizens. See also 'Freedom of movement (right to)'.

Port operator: also known as 'port authority'. The public institution and/or private company that operates the port facility, either at air or sea borders.

Registered traveller (RT): a third-country national who has been granted access to the registered traveller programme. See also 'Registered traveller programme'.

Registered traveller programme (RTP): a programme that allows third-country nationals who have been pre-vetted and granted access to the RTP to benefit from facilitation of border checks at the European Union's external border.

Schengen area: an area without internal border control encompassing 26 European countries, including all EU Member States except Bulgaria, Cyprus, Ireland, Romania and the United Kingdom, as well as four non-EU countries, namely Iceland, Liechtenstein, Norway and Switzerland. It takes its name from the Schengen Agreement signed in Schengen, Luxembourg, in 1985; this agreement was later incorporated into the EU legal framework by the 1997 Treaty of Amsterdam.

Schengen Borders Code: Regulation (EC) No 562/2006 of the European Parliament and of the Council of 15 March 2006 establishing a Community Code on the rules governing the movement of persons across borders.

Second-line check: a further check which may be carried out in a special location away from the location at which all travellers are checked (first line).

Third-country national: any person who is not an EU citizen within the meaning of Article 20(1) of the Treaty on the Functioning of the European Union and who is not a person enjoying the Union right to freedom of movement, as defined in Article 2(5) of the Schengen Borders Code. See also 'EU citizen' and 'Persons enjoying the Community right of free movement'.

Topology: the way in which the constituent parts of a system are interrelated or arranged.

Watch list: a list of individuals, groups, or items that require close surveillance. See also 'Database'.

Executive summary

The present document provides guidelines on the implementation of **automated border control** (ABC) systems to process third-country nationals (TCNs). ABC is defined as the use of automated systems that can verify the identity of travellers at border crossing points and automatically determine eligibility for border crossing according to predefined rules. A border guard stationed in a monitoring and control station supervises the process.

The **aim** of these guidelines is to clarify the legal, operational and technical aspects of ABC implementations aimed to facilitate TCN border crossings as they exist today and could exist in the future in line with the European Commission's proposals to establish an entry/exit system (EES proposal), a registered traveller programme (RTP proposal) and amendments to the Schengen Borders Code (SBC amendments). The guidelines will be regularly updated to reflect further development of the Commission's proposals within the framework of the legislative procedure and the results of the 2015 'Smart borders' pilot.

The intended **audience** consists of technical experts as well as decision-makers involved in the design and implementation of ABC systems in the EU Member States. The guidelines should be read in conjunction with the Frontex 'Best Practice Operational Guidelines' (BPOG) and 'Best Practice Technical Guidelines' (BPTG) for ABC and the 'Good Practices in Practical Implementation of the Visa Information System at EU Borders' (GPVIS).

The guidelines are structured in **three main sections** which focus respectively on: (1) the legal framework of border checks of third-country nationals; (2) current practice concerning border checks of third-country nationals, both manual and with the use of ABC; and (3) outlook on the development and implementation of ABC solutions for the processing of TCNs in the future.

The Schengen Borders Code, the EU Visa Code and national legislation set the **legal framework** for the various measures which are implemented at the border crossing points of the Schengen area. TCNs should undergo a 'thorough check' comprising a number of steps, such as the verification of the available means of subsistence and the purpose of the intended stay, which are difficult to automate. In the case of TCNs who are visa holders, border guards must also verify the identity of the visa holder and the authenticity of the visa by using the traveller's fingerprints.

Some Member States have launched pilots and implemented operational ABC systems for TCNs. The guidelines review the **cases** of Finland, Germany, the Netherlands and the United Kingdom. These implementations are generally available to a limited group of eligible nationalities, sometimes on the basis of bilateral agreements with third countries, and differ, among other aspects, on whether pre-enrolment is required, the biometric markers used and whether there are separate dedicated ABC infrastructures for TCNs and EU citizens.

The **future outlook** of ABC for the processing of TCNs will be shaped by the adoption of EU legislation on 'Smart borders'. The document reviews the European Commission's EES and RTP proposals and SBC amendments, focusing on the key elements that would shape the use of ABC for TCNs, mainly: (1) the establishment of an obligation to check whether a person has been granted access to the RTP and to verify the identity of the

registered traveller (RT); (2) the exemption of RTs from certain aspects of the thorough check; and (3) the replacement of the current stamping of travel documents by the electronic recording and verification of data in the EES. As proposed by the Commission, both the EES and the RTP would require the enrolment and verification of fingerprints.

These amendments open up **three scenarios** for the processing of TCNs through ABC. For TCNs enrolled in the RTP, all the stages can be fully automated at both entry and exit, since the checks on the purpose of stay and the means of subsistence have been waived. For non-enrolled TCNs, the possibilities include an ABC or ABC-assisted implementation where the entry requirements that are still applicable could be performed by answering the questions on a touch screen where the decision to authorise entry or exit would be done manually or electronically by a supervising border guard.

The ABC system may facilitate both EU/EEA/CH citizens and TCNs. However, if different workflows and biometrics apply to the two groups, particular attention should be paid to the provision of customer **guidance and instructions**.

In ABC for TCNs all the applicable requirements and recommendations regarding the document authentication, biometric verification and quality control processes listed in the BPOG and BPTG shall apply. Additionally, with respect to the fingerprint scanning process, the fingerprint quality control and requirements recommendations of the GPVIS should be adhered to.

Terminology

Although the recommendations and guidelines presented in this document are non-binding for Member States, the present terminology[2] has been adopted in order to provide an unambiguous description of what should be observed in order to achieve a coherent approach with a common security baseline across the European Union's external borders.

SHALL This word, or the terms 'REQUIRED' or 'MUST', is to be understood as an absolute requirement.

SHALL NOT This phrase, or the phrase 'MUST NOT', is to be understood as an absolute prohibition.

SHOULD This word, or the adjective 'RECOMMENDED', means that there may exist valid reasons in particular circumstances to ignore a particular aspect, but the full implications must be understood and carefully weighed before choosing a different course.

SHOULD NOT This phrase, or the phrase 'NOT RECOMMENDED', means that there may exist valid reasons in particular circumstances when the particular behaviour is acceptable or even useful, but the full implications should be understood and the case carefully weighed before implementing any behaviour described with this label.

MAY This word, or the adjective 'OPTIONAL', means that an item or feature is truly optional. For example, a vendor may choose to include the option because a particular marketplace requires it or because the vendor feels that it enhances the product while another vendor may omit the same item or feature. An implementation which does not include a particular option MUST be prepared to interoperate with another implementation which does include the option, although perhaps with reduced functionality. In the same sense an implementation which does include a particular option MUST be prepared to interoperate with another implementation which does not include the option.

2 See Bradner, Scott, 'Key words for use in RFCs [requests for comments] to indicate requirement levels', BCP 14, RFC 2119, 1997. (A request for comments (RFC) is a formal document (type of publication) from the Internet Engineering Task Force (IETF) that is the result of committee drafting and subsequent review by interested parties. Some RFCs are informational in nature. Of those that are intended to become internet standards, the final version of the RFC becomes the standard and no further comments or changes are permitted).

1. Introduction

1.1. Purpose and audience

This document presents a generic technical and operational framework for the implementation of automated border control (ABC) systems capable of processing third-country nationals (TCNs), both visa holders and visa exempt, at the EU's external borders. ABC is defined as the use of automated systems which can verify the identity of travellers at border crossing points (BCPs) and automatically determine eligibility for border crossing according to predefined rules. These rules need to observe the procedures and requirements set in the Schengen Borders Code (SBC) for carrying out border checks. The system's human oversight is provided by a border guard stationed in a monitoring and control station, who supervises the whole process.

The document has been elaborated in an effort to clarify the legal, operational and technical aspects of ABC implementations aimed to facilitate TCN border crossings as they exist today and could exist in the future. The intended audience consists of technical experts involved in the design and implementation of ABC systems in the EU Member States. Project managers and system architects from border management authorities will find here references to detailed technical information allowing for the specification and implementation of a system that performs to standards and complies with the legal requirements. In addition, current and prospective practitioners and decision-makers at national and EU levels may benefit from a better understanding of the technical, operational and legal aspects of the implementation of ABC systems processing TCNs.

1.2. Scope and methodology

The scope and content of the present document is aligned, when applicable, with the European Commission's proposals to establish an entry/exit system (EES proposal)[3], a registered traveller programme (RTP proposal)[4] and amendments to the SBC (SBC amendments)[5] constituting the 'Smart borders' package as well as the International Civil Aviation Organisation's (ICAO) recommendations on the use of e-passports for automated border control without enrolment[6], as available at the time of writing[7]. The existing

3 Proposal for a Regulation of the European Parliament and of the Council establishing an Entry/Exit System (EES) to register entry and exit data of third-country nationals crossing the external borders of the Member States of the European Union, COM(2013) 95 final 2013/0057 (COD).

4 Proposal for a Regulation of the European Parliament and of the Council establishing a Registered Traveller Programme, COM(2013) 97 final 2013/0059 (COD).

5 Proposal for a Regulation of the European Parliament and of the Council amending Regulation (EC) No 562/2006 as regards the use of the Entry/Exit System (EES) and the Registered Traveller Programme (RTP), COM(2103) 96 final 2013/0060 (COD).

6 See in particular 'Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Preparing the next steps in border management in the European Union', COM(2008) 69 final, 13.2.2008; ICAO, 'Guidelines for electronic — Machine-readable Travel Documents & Passenger Facilitation', Version — 1.0, 17.4.2008.

7 It should be noted that at the time of writing, the 'Smart borders' pilot coordinated by the European Agency for the Operational Management of Large-Scale IT Systems in the area of Freedom, Security and Justice (eu-LISA) is ongoing, thus the proposals may, as a result, be subject to changes.

systems and legal framework for processing TCN travellers by ABC systems are also described in order to provide information on the changes, challenges and opportunities offered by the proposals. In particular, the present document provides insight into the functioning and requirements concerning:

- the infrastructure and processes of ABC for TCNs today and as proposed by the European Commission;
- the physical architecture of an ABC system for TCNs;
- the document authentication process;
- the biometric verification process;
- quality control aspects of ABC systems.

Travel documents considered and biometric markers used

ABC systems can be divided into two types: (a) systems without pre-enrolment based on the use of an electronic travel document; and (b) systems based on pre-enrolment which generally take the shape of registered traveller programmes. The European Commission encourages Member States to deploy ABC systems without pre-enrolment for EU citizens carrying ICAO-compliant e-passports.

Most ABC systems currently in use support facial recognition as the main biometric verification method. However, the RTP proposal and the SBC amendments assume the use of fingerprints for TCNs and, if implemented as proposed, would require the use of a separate token for TCNs and enable the usage of regular machine-readable travel documents (MRTDs).

Methodology

The methodology used by the ABC working group (WG) to develop this document included thorough analysis and discussion of the current regulatory framework of the border checks applicable to TCNs, current ABC implementations processing TCNs in Member States and changes to the legislation regulating TCN processing proposed by the European Commission, as well as consultations with experts and with the Commission.

In particular, the following tasks were undertaken by the WG members:

- stating the problem and goals;
- analysing the SBC amendments and the EES and RTP proposals;
- elaborating the list of relevant topics to be covered;
- debating and agreeing on proposed guidelines;
- constructing the present document;
- conducting an internal and external review of the document;
- approving these guidelines.

This document is intended to be a dynamic one, subject to regular updates in an attempt to gather and disseminate knowledge on state-of-the-art technologies and best current practices regarding ABC systems for TCNs, to reflect further development on the three legislative proposals within the framework of the legislative procedure and to follow the implementation of the 'Smart borders' pilot carried out in 2015. The guidelines will be validated through consultations with relevant stakeholders and with technical/operational experts in the field of ABC.

1.3. About best practices and guidelines

Frontex has published best practice guidelines on the operational and technical aspects of ABC solutions, namely the 'Best Practice Operational Guidelines' (BPOG) and 'Best Practice Technical Guidelines' (BPTG) for ABC. A best practice is a technique, method, process, activity, incentive or reward which conventional wisdom regards as more effective at delivering a particular outcome than any other technique, method, process, etc. when applied to a particular condition or circum-

stance. In the Schengen context, for example, best practices are defined as 'a non-exhaustive set of working methods or model measures which must be considered as the optimal application of the Schengen *acquis*, on the understanding that more than one best practice is possible for each specific part of Schengen cooperation'[8].

For a best practice to be identified there needs to be conclusive evidence of its effectiveness based on sufficiently broad experience. This is the case concerning the development and implementation of ABC systems without pre-enrolment for EU/EEA/CH nationals carrying ICAO-compliant e-passports, as these kinds of solutions have been in operation in a significant number of Member States for an extended period of time.

In contrast, there is only limited experience in the EU as regards the use of ABC systems to process TCNs. In this light, the scope of the present document is circumscribed to the provision of **guidelines**, that is, of general, non-mandatory principles aiming to streamline particular procedures according to a set routine. The aim is to complement the BPOG and BPTG as well as the 'Good Practices in Practical Implementation of the Visa Information System at EU Borders' (GPVIS) by clarifying the legal, operational and technical aspects of ABC implementation aimed at processing TCNs as they exist today and as foreseen in the European Commission's proposals to establish an RTP and an EES.

1.4. How to read this document

These guidelines should be read in combination with the aforementioned Frontex documents, namely the ABC BPOG and BPTG, as well as the GPVIS. In particular, technical aspects are not repeated in this document, but references are made to the BPTG and GPVIS, when applicable.

Clarification of the terminology used, a glossary and a list of acronyms can be found at the beginning of the document.

8 Council of the EU, 'EU Schengen Catalogue: External borders control, return and readmission — Recommendations and best practices', Council document No 7864/09, 19.3.2009, p. 6.

2. Legal framework for border checks on third-country nationals

The Schengen Borders Code sets the framework for the various border control measures which are implemented at the external BCPs of the Schengen area. The notion of 'border checks' means the checks carried out at BCPs, to ensure that a person, including their means of transport and the objects in their possession, may be authorised to enter the territory of the Member States or authorised to leave it.

According to the SBC, EU citizens and those enjoying the right of free movement are subject to a 'minimum check', which consists of establishing their identities on the basis of presented travel documents and a straightforward verification of their validity and authenticity, including consultation of databases, when necessary. With the issuance of e-passports by Member States, an infrastructure for travel document authentication and biometric verification emerged; this made it technically feasible to perform minimum checks automatically with the use of ABC systems. Some Member States have successfully implemented such solutions to facilitate border crossings by EU/EEA/CH passport holders.

The SBC, however, sets a number of additional requirements for border checks on TCNs, such as the examination of the entry and exit stamps in order to verify that the person has not already exceeded the maximum duration of authorised stay in the territory of the Member States, the verification of the purpose of the intended stay and that the person has sufficient means of subsistence. These requirements limit the possibilities to automate the processing of TCNs, as some of the required checks cannot be performed by ABC systems but have to be completed manually.

Moreover, one of the most challenging aspects of border checks on TCN visa holders is the obligation to verify the identity of the visa holder and the authenticity of the visa by using the fingerprint of the traveller. This requirement, set by the SBC on the basis of the provisions of the Visa Information System (VIS) regulation[9], has been mandatory since October 2014.

9 Regulation (EC) No 767/2008 of the European Parliament and of the Council of 9 July 2008 concerning the Visa Information System (VIS) and the exchange of data between Member States on short-stay visas (VIS Regulation).

3. Current procedure for border checks on third-country nationals

3.1. TCN manual border check process

The manual border check process for a TCN traveller consists of the following steps.

Figure 1. **TCN on entry**

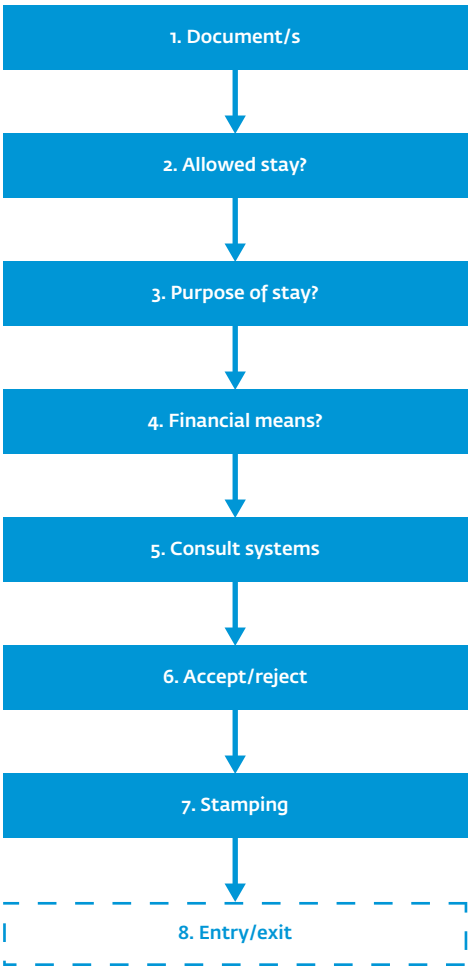


Figure 2. **TCN on exit**

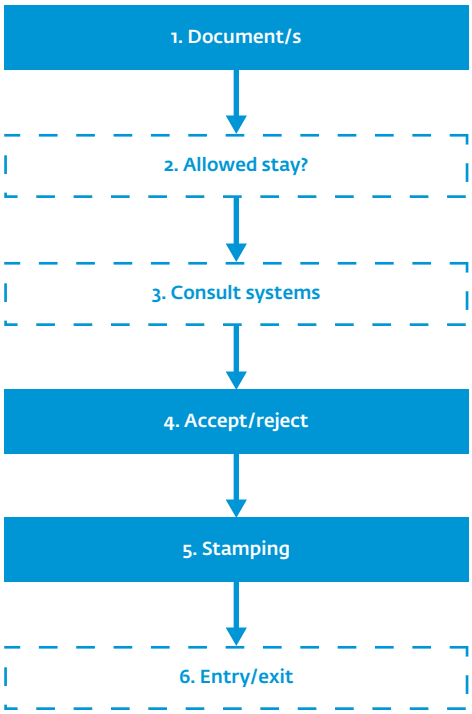


Figure 3. **TCN-VH on entry**

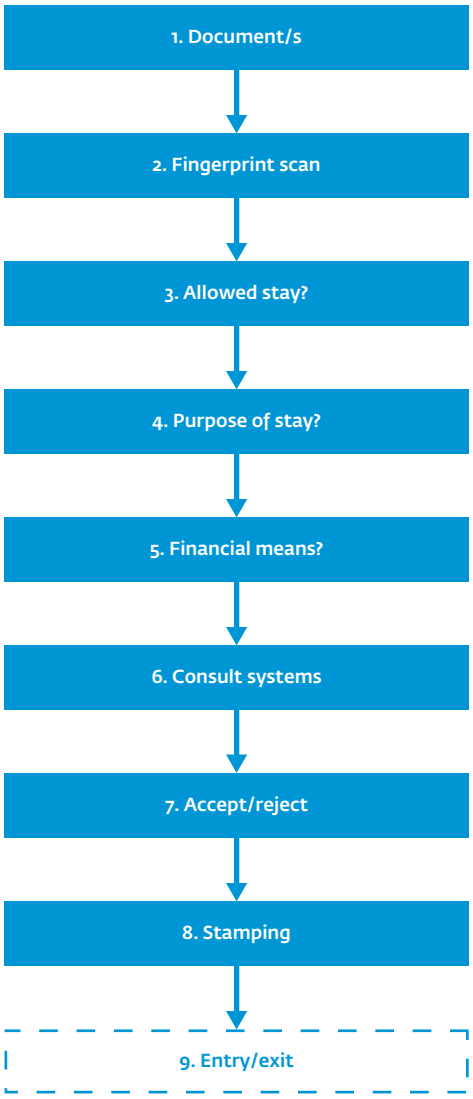
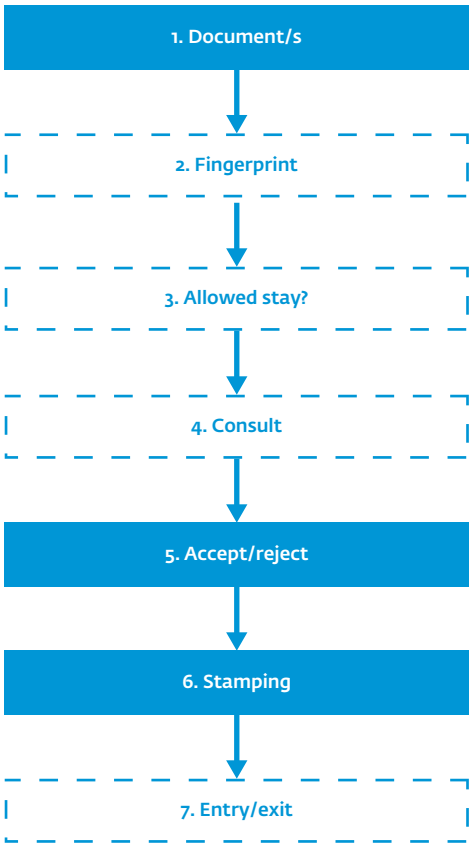


Figure 4. **TCN-VH on exit**



Figures 1 and 2 illustrate the content of a thorough check as defined by the SBC; dotted lines indicate that the step is optional. In practice, these steps can take place in parallel or in sequence. In some Member States, the process also includes the consultation and entering of data into a national entry/exit system.

As noted above, currently the requirements set by the SBC considerably limit the possibilities for processing TCNs through ABC systems. In practice, only the steps of document authentication, identity verification (referred to as the 'Document check') and database queries (referred to as 'Consult systems') can be automated. The configuration of an ABC system can, however, also include processes such as entry/exit recording into national systems or allow for checking the eligibility of the traveller's nationality to use ABC where eligible nationalities have been restricted, for example to visa-exempt nationalities only. These requirements have so far, regardless of the growing number of e-passport holders among TCN travellers, limited the expansion of ABC systems for the processing of TCN and had a negative impact on the cost-efficiency of the systems.

While Figures 1 and 2 describe the basic border check process for both TCN traveller groups — visa exempt (VE) and visa holders (VH) — the VIS verification process for TCN-VH, illustrated in Figure 3, comprises yet another phase, i.e. fingerprint scan. This additional phase, which has been depicted as a separate step, is in reality part of the document check as it is connected to the visa verification and authentication.

3.2. Existing ABC and ABC-assisted processing of TCNs

Despite the fact that many of the TCN processing phases, in particular on entry (Figure 1), cannot be automated, some Member States have launched pilots and implemented operational ABC systems for TCNs. In these implementations, the basic process flow can be depicted as below (Figures 5 and 6).

Figure 5. **ABC-assisted control for TCN on entry**

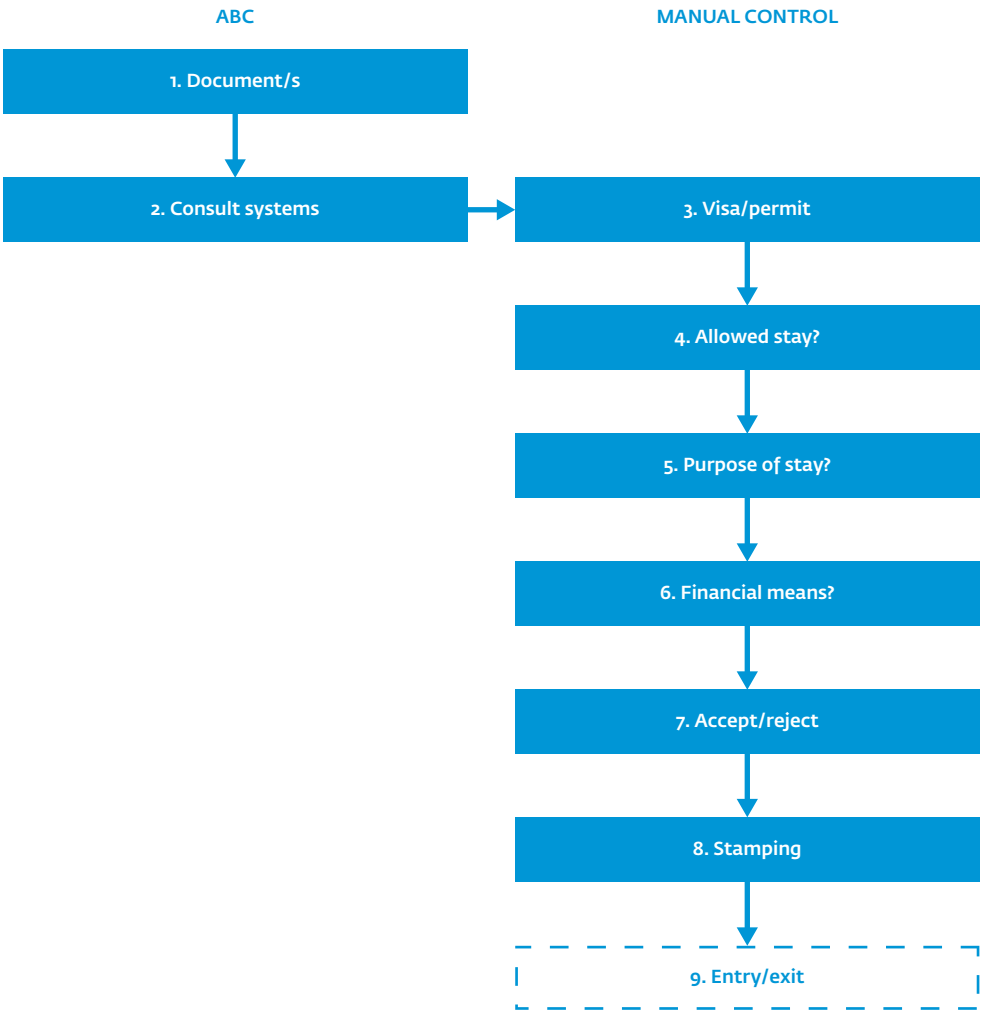
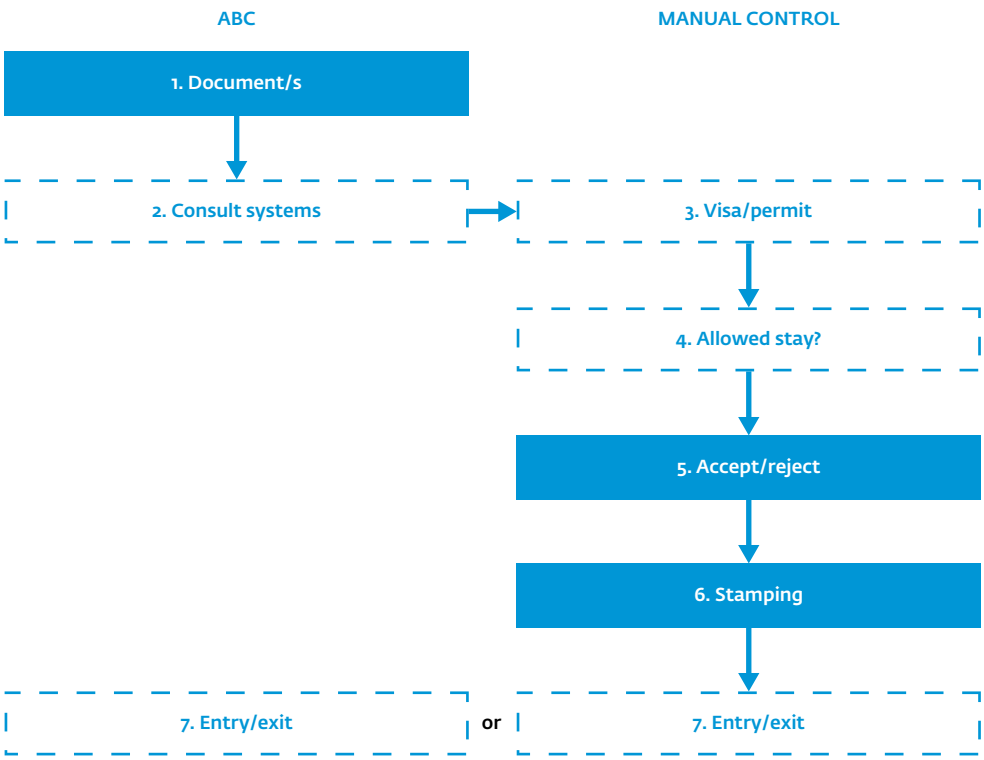


Figure 6. **ABC-assisted control for TCN on exit**



3.2.1. Finland

The Finnish Border Guard has piloted an ABC solution for the assisted processing of TCN-VE travellers at the exit controls of Helsinki-Vantaa Airport. The exit e-gates are available to a limited group of nationalities. At the time of writing, TCN-VE travellers holding passports issued by Australia, Japan, New Zealand, South Korea and the United States are allowed to use ABC. At entry, the e-gates are available only for Japanese travellers.

A specific workflow has been created in the ABC system to support systematic database queries (as opposed to the randomised ones used for the EU/EEA/CH workflow) and the recording of entry and exit data in the national EES system. Otherwise the processes for TCN-VE and EU/EEA/CH processing are similar and based on facial verification against the traveller's photograph stored in the e-MRTD chip. Both workflows can be enabled by the supervising officer and, if necessary, used at the same time, thus enabling joint usage of the gates by the two groups of passengers. However, due to the stamping requirement, the gates used by the TCN-VE are separated by a barrier guiding the travellers to an officer to have their passports stamped. Registration of eligible TCNs is not required.

Finland has also launched a pilot to test the ABC for TCN-VH travellers at the Port of Helsinki. The purpose of this pilot is to study the aspects of the 'Smart borders' proposals mentioned above and contribute to the creation of the EES and the RTP through a real life experiment. This process comprises both

fingerprint scanning and facial recognition as well as entry/exit recording.

3.2.2. Germany

EasyPASS in Germany has a built-in RTP functionality that can be used by TCNs of certain nationalities at entry and exit controls of participating airports. Based on agreements in place with the United States and Hong Kong concerning the mutual use of ABC systems, the holders of e-passports issued by the United States and Hong Kong aged 18 years and above are eligible to register for the programme.

Participation in EasyPASS-RTP is free of charge. To register in EasyPASS-RTP, the traveller should visit an enrolment centre at a participating airport[10]. The enrolment procedure comprises a questionnaire and a personal interview. The enrolee is asked to sign a form confirming his or her voluntary participation in EasyPASS-RTP and consenting to the storage of his or her personal data. Subsequently the Federal Police checks whether the RT meets the participation requirements, the validity and authenticity of the travel document and whether there are any security issues that preclude the enrolee's participation in the RTP. The RT data is checked against available police information systems. Provided that there are no objections for security reasons, the personal data is stored in the EasyPASS-RTP database of the Federal Police. If the RT completes the procedure successfully, he or she is able to use EasyPASS-RTP immediately and for the remaining validity of his or her e-passport. A confirmation of the recorded data and of the purpose of its use (in accordance with German law) is issued.

EasyPASS is a two-step solution whereby the RT is directed towards the ABC system at the airports participating in the programme. The RT has to place his or her passport on the document reader; after the passport has been recognised and the participation status has been checked in the EasyPASS-RTP database, the door to the lane will open and the live image of the face of the RT will be verified against the passport photo. If face recognition is successful, RTs have to wait until a border guard opens the exit door and then have to move forward to the monitoring booth, where the additional entry requirements are checked and the passport is stamped. After these actions have been performed the border check is completed.

3.2.3. Netherlands

The regular e-gates in the Netherlands are targeted at EU/EEA/CH travellers, but there are RTPs in place allowing TCN travellers to use biometric gate systems as well. These programmes require a pre-vetting and enrolment and the traveller is issued a separate token on which his/her iris image has been stored. The options for facilitating the border crossing of these RTP travellers through the e-gates in the future are currently being explored.

As regards TCNs, the programme is now available only to US citizens based on a bilateral agreement enabling the use of similar facilitation schemes for Dutch travellers in the United States. The discussed new processing of these TCNs foresees that residence permit holders would be able to use the gates as EU/EEA/CH citizens as they are not subject to the stamping requirement, while those not having a permit would be guided to an officer for stamping.

10 As of June 2015, enrolment centres are available at Frankfurt Airport and Munich Airport. Other enrolment centres will open shortly.

3.2.4. United Kingdom

The UK Border Force recently began its own RTP. This has been introduced in two stages, the first as a pilot to allow testing of the processes for a small cadre of eligible enrolees and the second to increase the eligible pool, allow the use of e-passport gates (ABC) and charge a fee for the service.

Currently, membership in the RTP is restricted to TCNs from Australia, Canada, Japan, New Zealand and the United States who travel regularly to the United Kingdom. To enrol, the TCN first registers his or her details and agrees to the terms and conditions of the scheme on the RTP website[11]. Background checks are carried out against government systems and if successful the TCN is sent a confirmation letter. On his or her next arrival to the United Kingdom the TCN gives this letter to the border guard who carries out their usual checks. The border guard confirms that the travel history and intentions of the TCN are acceptable for the scheme. If successful, the border guard confirms his or her acceptance into the scheme. From this point onwards the TCN is allowed to use either a dedicated RTP desk or the EU channel to enter the United Kingdom (depending on the configuration of the port concerned).

TCNs who hold an e-passport will be allowed to use the e-passport gates (ABC) where available. The majority of RTs will be expected to use ABC, which will work in broadly the same way as for EU passengers (facial recognition against the passport photo and live checks against government watch lists).

Legislation stipulating that the RTs who use the e-passport gates will not have their passports stamped was passed in 2010. Instead they will be granted 'authorised leave' by the e-gate at the point at which they enter the United Kingdom. As part of the terms and conditions, RTs acknowledge acceptance of this leave and they agree to abide by the rules in accordance with their enrolment.

A subscription fee is charged for successful RTs. It is also foreseen that eligibility will be extended to other 'low-risk' traveller groups over time, including TCN-VH, and that the ability to undertake fingerprint capture to carry out identification/verification will be incorporated into the system. Business cases for ABC already take into account the usage by RTs as part of their cost–benefit analysis on a port-by-port basis.

3.2.5. Local border traffic

Member States having local border traffic agreements in accordance with Regulation (EC) No 1931/2006[12] could also benefit from the use of ABC or ABC-assisted processing of TCNs, but so far no Member State has implemented ABC systems for this purpose.

Spain has been planning the introduction of an ABC system for Gibraltar which in principle would be similar to an implementation serving local border traffic.

11 See: http://www.gov.uk/registered-traveller

12 Regulation (EC) No 1931/2006 of the European Parliament and of the Council of 20 December 2006 laying down rules on local border traffic at the external land borders of the Member States and amending the provisions of the Schengen Convention (OJ L 405, 31.12.2006).

4. Perpectives on TCN ABC in the future

4.1. Legal framework

The European Commission has put forward legislative proposals on the establishment of an EES and an RTP together with amendments to the SBC within the context of the 'Smart borders' package[13]. The aim is to facilitate border checks at the EU's external borders and to enable the usage of the ABC infrastructure by a larger population.

The purpose of the proposed EES is to establish an information system which would allow the recording of entry and exit information of TCNs. The EES would also comprise an automated stay duration calculator to inform the border guards of the time the TCN has spent in the territory of the Member States and alert them on overstayers. The RTP would allow certain groups of frequent travellers from third countries to pre-register in order to use ABC facilities when available at BCPs. Like the VIS, both systems would require the enrolment and verification of fingerprints.

The main proposed amendments to the SBC that would impact the implementation of the ABC for TCNs are the following.

1. Establishment of an obligation to check whether a person has been granted access to the RTP and verification of the identity of an RT.

   According to the RTP proposal, an RT would be issued with a token containing the RT's unique identifier number in a machine-readable format. This unique identifier number (token) and the number of the travel document shall be used in order to verify that access to the RTP has been granted. Additionally, verification of the RT's identity by verifying his or her fingerprints shall be performed.

2. Introduction of an exemption for RTs from certain parts of the thorough check.

   An RT would be exempted from the thorough check of the travel document as well as from the verification of the points of departure and destination, the purpose of the stay, including supporting documents, and the possession of sufficient means of subsistence.

3. Replacement of the current stamping of travel documents by the electronic recording and verification of data in the EES.

   The SBC amendments contain a general obligation for TCNs entering the Schengen area to be registered in the EES. In addition, during the border checks on entry and exit there will be the obligation to verify whether a TCN has already been registered in the EES and to check whether the person has not exceeded the maximum duration of authorised stay.

4. Other relevant amendments include:
   - the introduction of a compulsory authenticity check of the chip in travel documents containing an electronic

13 It should be noted that, at the time of writing, the European Commission initiated a proof of concept exercise aimed at identifying options for implementing the 'Smart borders' package, which included a technical study led by the Commission and a pilot project led by eu-LISA.

storage medium; according to the draft provisions if the passport or other travel document contains an electronic storage medium (chip), the authenticity of the data stored on the chip shall be ascertained using the complete valid certificate chain, unless this is impossible due to the non-availability of valid certificates or for other technical reasons;

- the obligation to provide information to the traveller on the remaining period of authorised stay when requested;
- the setting of three groups of indications/pictograms to be used at ABC gates: one for EU/EEA/CH citizens, one for third-country nationals and one for all passports.

The proposed systems are based upon the usage of fingerprints as biometric identifiers in both the EES and RTP with the exception that visa holders' fingerprints already entered in the VIS would not be entered in the EES.

These amendments would enable the processing of TCNs through ABC; however, they also present some challenges and create new requirements. According to the proposals, an ABC system targeted at TCNs or the assisted processing of TCNs through ABC would be possible under the following circumstances.

1. Checks on RTs on entry may be carried out through ABC supervised by a border guard. This applies only to those TCNs who have been pre-vetted and have been granted the access to the RTP.
2. For TCNs whose fingerprints are stored in the VIS or on a travel document from which fingerprints may be technically and legally accessed by the border guard, thorough checks on entry may be carried out through ABC in combination with self-service kiosks to examine the aspects of thorough checks listed in Article 7(3) of the SBC. The process shall be monitored and followed by an individual decision by the border guard to authorise or refuse entry. In practice, this option means that the self-service kiosks provide the means to answer questions concerning the entry requirements listed in Article 7(3) of the SBC and it is not a fully automated ABC system.
3. Thorough exit checks on RTs and TCNs whose fingerprints are stored in the VIS, or on a travel document from which fingerprints may be technically and legally accessed by the border guard, may be carried out with the use of ABC systems under the supervision of a border guard.

4.2. Future scenarios for TCN ABC

In the above scenarios the content of the border checks on TCNs established by the SBC would consist of the following phases.

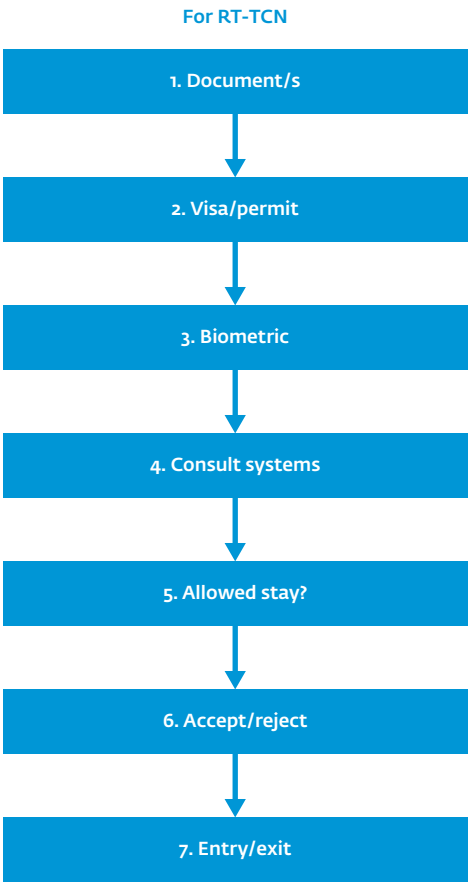
When these border checks are implemented by ABC or ABC-assisted means, they should comprise the following stages.

The document scan phase refers to the scanning of the travel document and the RT's token or the visa, if applicable. All the document authentication procedures described in Section 4 of the BPTG SHALL apply, with the exception of Subsections 4.3 and 4.4 in case of a non-electronic passport.

When the biometric capture is performed the recommended practices described in Sections 5.1 and 5.2 of the BPTG and those in the GPVIS SHALL be taken into account. The amount of biometric data and the quality requirements thereof shall be defined in the legal and implementation instruments of the EES and RTP.

Processing the scan results refers to a phase where the travel document, token and biometric capture results are being processed and data is being collected to perform the required database and system queries.

Figure 7. **Border check of an RT-TCN on entry and exit**



Processing the collected data refers to a process where the data in the third phase is being processed by the system and required messages are being created in defined formats to query the necessary central and national databases.

System consultation refers to performing queries in all required databases both at central and national levels. These queries include queries to any watch lists, the RTP central repository and the EES, which would also provide information about the allowed stay duration of the traveller.

Processing the results will provide the system and the operator with the necessary information to decide how the traveller should be processed further, including the calculation of the allowed duration of stay.

In this phase, the traveller will either be allowed to cross the border or rejected or referred to the second line.

In this phase, the system creates a message in accordance with the EES technical specifications to create the entry/exit record in the EES; this is done on the basis of the decision to accept entry and making use of the information collected in the first and second phases, complemented with other data provided by the system and received from the EES query. As noted above, these messages SHALL be created in compliance with the EES specifications. It should be noted that depending on the required information, it may only be possible for a TCN-VE RT to use the ABC from the second entry onwards.

In order to ensure that all entries and exits are recorded and entered into the EES in accordance with the legal requirements, it is RECOMMENDED that the system is provided with an electronic transaction receipt either from the national system or from the central EES confirming that the transaction was successful. This receipt may also contain the end date of the maximum allowed stay duration of the traveller, which may be made visible to the traveller.

When all the required transactions and processes are successfully performed, the system allows the traveller to cross the border.

The proposed legal instruments foresee biometric verifications being performed at the central system level only.

The details applicable to the consultation of the EES and the RTP will be defined in the le-

Figure 8. **Border check of a non-RT-TCN on entry and exit**

gal instruments, the technical specifications and the technical implementing measures of these systems.

For an RT-TCN, all the stages can be fully automated at both entry and exit, since the checks on the purpose of stay and the means of subsistence have been waived.

For a non-RT-TCN, the SBC amendments offer other possibilities regarding ABC or ABC-assisted implementation, where the still applicable checks of entry requirements could be performed by answering the questions on a touch screen by the border guard or where the decision to authorise entry or exit would be done manually or electronically

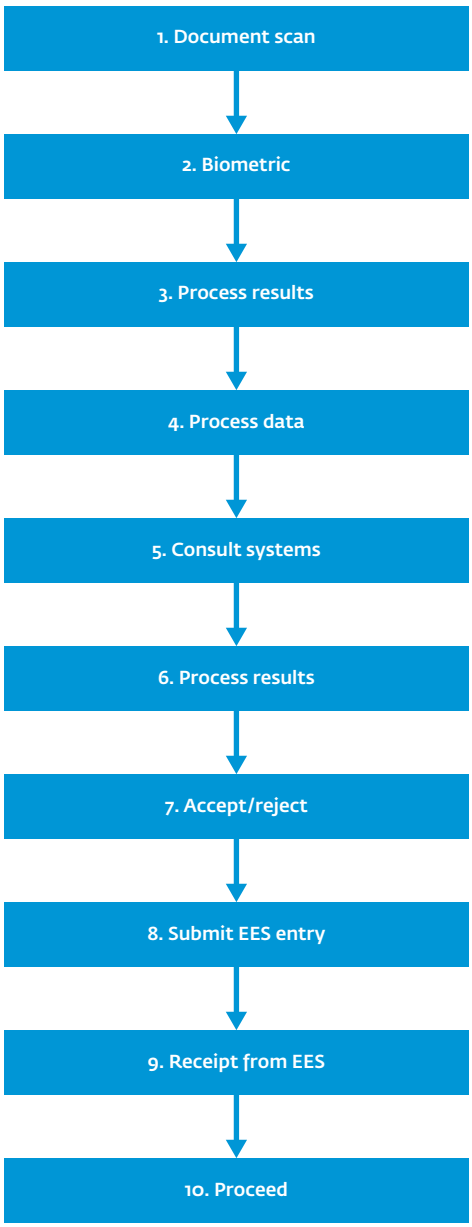
by a supervising border guard. Additionally, the document scanning and biometric capture phases could be implemented with the use of a self-service kiosk.

4.3. TCN ABC topology considerations

The SBC amendments foresee the possibility to deploy both a full ABC system and a self-service kiosk solution for TCNs. The ABC system may facilitate both the EU/EEA/CH citizens and TCNs. If this option is selected for cost-efficiency or other reasons, particular attention should be paid to the provision of customer guidance and to the instructions displayed by the system if different biometric markers and workflows are used for the two groups. Also, due to a growing cultural diversity of ABC users, the used instructions and/or animations should be globally understandable to the highest extent possible.

The different options for the deployment of ABC systems as regards their architecture and topologies have been discussed in detail in Subsection 3.6 of the BPOG and Section 3 of the BPTG.

Figure 9. **ABC implementation for TCNs for whom full automation is allowed**



5. The document authentication and biometric verification processes

In an ABC for TCN(s) all the applicable requirements and recommendations listed in the BPOG and BPTG shall apply. When considering the fingerprint scanning process in general and for the VIS verification purposes, attention should be paid to the recommendations of the GPVIS.

6. Quality assurance

With respect to quality assurance, the recommendations listed in Section 6 of the BPTG shall apply. Regarding the fingerprint quality control and requirements, the recommendations of the GPVIS should be adhered to.

7. Conclusions

The present document has provided guidelines on the implementation of ABC systems to process TCNs at the EU's external borders. The legal framework applicable to border checks on TCNs was first introduced, with particular regard to those legal requirements that pose a challenge to their automation. By reviewing pilot projects and implementations in four Member States, namely Finland, Germany, the Netherlands and the United Kingdom, the guidelines then presented current practices at the national level concerning the use of ABC for TCN processing. Finally, the document illustrated a number of possible scenarios concerning the development and implementation of ABC solutions for TCNs, in light of the European Commission proposals to establish an RTP and an EES. It is concluded that the proposals open up the possibility to use ABC as a fully automated system on both entry and exit, for RT-TCNs for whom checks on the purpose of stay and the means of subsistence have been waived, or as an assisted implementation checking entry requirements through a self-service kiosk or by a supervising border guard, in the case of TCNs who are not RTs.

Importantly, these guidelines draw heavily on the configuration of the EES and RTP **as proposed by the European Commission**. However, the content of the proposals may undergo significant modifications throughout the legislative procedure, including the possibility of the presentation of new legislative proposals by the Commission and/or the introduction of amendments during the negotiations between the European Parliament and the Council of the EU. The guidelines will be subject to updates to reflect such changes, as well as to reflect technical improvements and developments in national practices.

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