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# Working Group on ICT Solutions for External Borders (sea/land) Report

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# 1. Introduction

This document is summarising the outcomes and recommendations of the Working Group on ICT Solutions for Member States (MS) with External Borders (sea/land), as mandated by the EES Program Management Board.

First and foremost, this document is summarising its mandate, as well as the composition of the group.

In the second part, the process related to the Entry/Exit System in the context of the verification at the border (Article 23 of EU Regulation 2017/2226) is summarised, to better understand how the introduction of EES impacts the process during the border crossing via a land and/or a sea border including the impact on the border crossing time related to this in the case of first entry.

The next sections of the document will focus on the problem statements and the elements that have been assessed from a procedural and a technical perspectives.

Finally, the last section provides the requirements for the ICT solution to be addressed as well as recommendations of the next steps to be performed by the Member States in cooperation with EBCGA (Frontex) to better refine the processes independently of the technical solution recommended by the working group.

## 2. Working Group mandate and composition

### 2.1. Mandate

The mandate of the Working Group has been defined by the EES Program Management Board.

The objective of the Working Group is to facilitate the work towards a viable solution and a common architecture for the implementation of EES at the external EU sea borders, land borders. The recommendations needs to be compatible with the existing legal bases and the associated business processes.

Given the complexities of the processes at sea and land borders, the working group was divided into two sub-groups covering respectively land and sea borders.

### 2.2. Composition

The Working Group was composed as follows:

- MS experts (business and technical) with external land and sea borders from: BG, DE, EE, FI, GR, HR, HU, LT, LV, NO, PL, SL, SK, PT, IT, NL, BE, FR, ES, MT, SE, DK, RO;
- European Border and Coast Guard Agency (EBCGA);
- European Commission;
- eu-LISA.

### 2.3. Meetings

The Working Group met on the following dates:

- 08<sup>th</sup> of November 2018 in Strasbourg
- 03<sup>rd</sup> of December 2018 in Tallinn
- 30<sup>th</sup> of January 2019 in Strasbourg
- 13<sup>th</sup> of February 2019 in Tallinn
- 13<sup>th</sup> of March 2019 in Tallinn

### 3. Border crossing generic process

In order to fulfil the EES obligations, the following process shall be implemented for every Third Country National (TCN) entering or exiting the Schengen area:

1. Identify if the TCN is subject to EES registration or not;
2. For the TCN subject to EES registration, the alphanumeric data shall be captured to determine the next sub process (being either: first entry, exit or subsequent entry);
3. Capture of biometric data either for enrolment or for verification/identification;
4. Creation of the Entry/Exit/Refusal record.

More details on the way this process shall be implemented can be found in the annex 8.1.1 referring to Article 23: Use of data for verification at the borders.

The main concern for land and sea borders is the capture of the biometric data in optimal conditions to ensure the required level of quality.

## 4. Land border Processes

For the land borders, the following cases shall be investigated to identify which process can be applied. For that purpose, this section will first define the process and sub-process to be applied independently of the context and then define for each of the identified case, the specificities that shall be addressed.

The cases identified so far for the land border crossing are:

- Border crossing for pedestrian;
- Border crossing for cars (including trucks);
- Border crossing for coaches;
- Border crossing for trains.

### 4.1. Border crossing for pedestrian

In this case, the TCN will have to go through various possible border crossing infrastructure similar to the ones in place at airports such as: pre-registration desks/kiosks, ABC systems, Self-Service Systems or booths, where the process defined in the previous sections can be executed in optimal conditions.

### 4.2. Border crossing for cars (including trucks)

The issue to be addressed when crossing the border by means of a vehicle is not the filtering of travellers based on their category, as this is already the case in most of the border crossing points. It is the management of the length of the queue and the waiting time which could lead to frustration and other unpleasant for TCNs situations (discomfort for TCNs, elderly passengers, parents, children, infants, cases involving vulnerable persons etc.).

In order to optimise the border checking of those travellers and, at the same time protect respect their dignity as per regulation, the following approaches have been identified, with their associated drawbacks:

- Pre-enrolment desk: a first registration desk, where all different information (Travel document, biometrics) will be captured for each traveller. During the movement of the traveller to the border crossing line, these data would be processed and a decision taken at the last moment. However, it should be noted that this pre-registration does not exclude checks on the transportation means against relevant databases. This means that, although passengers' data have partially been inserted in the system before reaching the control lane, passengers still have to wait for the car to be controlled.
  - o The pros/cons of this approach:
    - (-) This requires additional space and the creation of such desk. In addition, to allow the capturing of the biometric data in optimal conditions, this would require the travellers to leave their vehicle (cars, trucks...). This can be considered as a serious drawback in certain BCP with space limitations inside and outside (to stop or park) the BCP infrastructure;
    - (-) Getting people out of the vehicles would negatively impact the management of the passenger flow;
    - (-) the length of the queue and the waiting time could increase as the problem is moved from the border guards booths to the pre-enrolment desks;
    - (+) This could leave time for the processing of the data.
- Mobile enrolment: border guard going up the line of vehicles doing the verification/enrolment.
  - o The pro/con of this approach:
    - (-) Capturing biometric data with mobile devices is not optimal from the quality perspective (see later in this document);
    - (-) Not possible to ensure a 24/7 quality of the enrolment process
    - (-) This would require a strong network (wireless) to allow connectivity between the border guard on the move and the border infrastructure. In addition, encryption issues

- have to be assessed.
- (-) The security of the border guard shall be assessed as he/she will be exposed to all related risks when moving across the vehicle lines within the limit of the area dedicated for border check activities.
- Mobile pre-registration: a first sending of information from a personal device (Travel document, biometrics) will be self- captured for each traveller and associated to the vehicle. During the movement of the traveller to the border crossing line, these data would be processed and a decision/acceptation of register taken at the last moment by a border guard.
  - o The pros/cons of this approach:
    - (+) This could leave time for the processing of the data.
    - (+) Filtering if (any) TCN (at the car or truck) is subject or not to EES registration
    - (-) Capturing biometric data with mobile devices is not optimal quality wise (see later in this document);
    - (-) This requires additional creation of a web service and mobile application with strong quality restrictions and antifraud functionalities
- Increase the staff allocation and perform the border checks in clusters of 5 to 10 vehicles at the same time; the length of the cluster can be adjusted during some testing phases. The increase of staff involved in border checks can be done by redistribution of available staff of the same BCP or from the hierarchical BCU, mainly during the peak hours.

However, in certain cases, where the land border crossing point is located in an area where the expansion of the infrastructure is not possible, the filtering of TCN might be an issue (e.g.: BCP on a road between the sea and a cliff). In that case, the used equipment/systems at the border needs to support the border guard in (or be able to) identify if the TCN is subject or not to EES registration.

### 4.3. Border crossing for coaches

The following approaches are currently in place for such process:

1. The travellers remain in the coach and the border guards are doing the verifications within the coach;
2. The travellers are requested to leave the coach and the verification is done at a booth;
3. The travellers send all register data (biometrics and traveller document) in advance from their own devices and border guards are doing the verifications/acceptation of new register creation (within the coach).

Regarding the first approach, as coaches already have dedicated lane, in case of several coaches arriving at the same time, the queue could be significant. In that case, an on-board check is preferred.

The approach 2 is quite trivial and is covered by the same case as pedestrian (see section 4.1).

The approach 3 can be combined with approaches 1 and/or 2.

### 4.4. Border crossing for trains

The process for crossing the border by train is more complex.

Currently the following solutions are in place at external borders:

1. The checks are done before entering or when exiting the train;
2. The checks are performed in the train while stopped or in movement.

For the case 1, the constraints are that the number of entering/exiting stations shall be limited in order to ensure people can be checked before entering or after exiting the train. This configuration is already in place for the shuttle between the continent (France, Belgium, Netherlands and United Kingdom). In this case, it is important



that the TCNs know which kiosk they should use (i.e.: TCN going to France shall use the French Kiosk) unless multi-purpose kiosks can be used.

For the second case, the issues identified so far by the Working Group are:

- The stability of the network which is not always sufficient to allow the processing of the required data (especially when the train is in movement);
- The need for use of mobile devices which could lead to lower quality in capturing the data;
- The light conditions might be not enough to perform good quality photo. Mobile solution should perform photos in low lightning conditions.

## 5. Sea border Processes

For the sea borders, the following cases shall be investigated to identify which process can be applied:

- Cruise vessels:

We can consider 2 different cases:

1. When all passengers are embarking/disembarking at the same time
2. When only a number of the passengers are embarking/disembarking

In both cases, time is limited. The difference resides in the number of passengers to check and it is a critical issue with big cruise ships (some of them are transporting more than 6000 passengers).

We have to take into consideration the members of the crew during crew rotations.

- Ferries:

It's similar to cruise vessels when all passengers are disembarking at the same time. In this case, we have to take into consideration passengers travelling with their cars or any other transportation mean on board.

Challenges:

1. Ferries should to disembark the passage and embark the new one in a limited time slots according agreements established between ports and carriers;
2. Parking space for cars at the port.

- Cargo carrying passengers:

The challenge is that cargo vessels moor in specific areas, not necessary connected to the BCP. Sometimes cargo vessels are anchored near the port and passengers/crew use shuttle boats to reach the port.

- Yachts (pleasure boat):

Yachts passengers are obliged to go to the nearest BCP if they are arriving from a third country. The problem is that many marinas are located away from any BCP and yachts don't have a planned trip in advance.

An element of importance is to distinguish "disembarking" from "going ashore".

In case of "disembarking", the passenger or the crewmember will be subject to EES registration while the case of "going ashore" will be described and handled in the EES handbook.

In addition, the traffic generated by the workers on the ship shall also be considered. Most of these workers are coming from countries subject to multiple entry visa. For these TCN, the flow to be considered is the following:

- They arrive from their country of origin via an airport where their entry should be registered in EES;
- When embarking, their exit should be registered into EES;
- At the end of their assignment (example: 6 months), their entry shall again be registered when disembarking;
- Finally, when they arrive at the airport to return to their country of origin, their exit should again be registered.

For the yachts and the cruise ships, the process to be applied will be further detailed in the EES Handbook.

The European Commission will analyse the scenarios described above in order to see whether the handling in the EES handbook is sufficient or whether a change of the Schengen Borders Code might be required to ensure the proper application of EES.

In this context, a survey was conducted in the framework of this working group to receive information from WG members how the scenarios, in particular for cruise ships, are dealt with currently. The survey results will be

used to conduct this analysis

## 5.1. Border crossing by means of Cruise vessels

For the cruise vessels, the following elements have to be considered:

- All travellers that are embarking/disembarking (start and end of the Cruise);
- Part of the travellers are embarking/disembarking (stops);
- Crew members' rotation.

### **Travellers subject to EES registration:**

The embarking/disembarking of the passengers can be handled by the same means a land border (fix or mobile equipment) depending on the available infrastructure.

### **Crew members subject to EES registration:**

It shall be assessed if this additional traffic can be considered as following the same flow as a 'tourist' crossing the border. The volume of these TCN might be high given the number of workers usually equivalent to the number of passengers. However, it can be considered that this flow will happen before or after the travellers embarking/disembarking.

The case of crew members are going ashore in accordance with SBC annex VII p.3 will be described in the EES Handbook and the European Commission will analyse whether the description in the handbook is sufficient or whether a changes to the Schengen Borders Code will be required. However, if the crewmembers are disembarking (signing- off the vessel), an entry check should be done with an EES registration. This can take place in the harbour or at the nearest Border Crossing Point.

## 5.2. Border crossing by means of Ferries

The constraints to be addressed by this process is the time required to leave the boat which is constrained by the planning of the ferries and by the space available on the harbour. The passenger flow can consist of two (or more) types. First the "incidental traveller" that does not use the Ferry regularly and secondly the "professional traveller" for instance a truck driver going back and forward multiple times a month.

The process shall cope with the same constraints as the one at the land borders; therefore, the process defined in sections 4.1, 4.2 and 4.3.

The working group already identified the following areas that could be used to improve the process such as:

- Doing the verification at the border on the Ferry. This solution would require an agreement between the carrier (ferry owners) and the Member states to install booths (Self-service and real booth) on the boat themselves.
- Doing the verification before embarking. This would require the installation of booths in a non EU Member State but would help in respecting the disembarking time constraints. The same constraints as the one mentioned for the train are applicable in this use case.

In practice, these two proposals are difficult to implement as:

- In short-distances trips, it will be impossible to check all passengers during the sailing;
- The security of the border guards will be difficult to ensure as they are in a closed environment and a limited staff in case of incident;
- Difficulties to split passengers into the checked ones and those who are not checked yet.

Separate Registered Traveller Programme (RTP) lane for trucks were drivers has been granted RTP status. Drivers ("professional travellers") travel back and forward the same route; using the RTP system can speed up the border check for this group.

### 5.3. Border crossing by means of cargo and /or fish boat

A general challenge when it comes to border checks on cargo and fish boats is that these vessels in many cases do not dock in ports where there is a continuous presence of border control authorities/police. For instance, both Sweden and Norway, have a large number of smaller ports where border crossings can take place. In many of these ports there is no physical infrastructure/buildings, no fixed control booths or equipment. Border guards/police in some instances have to drive several hours from nearest police district location to reach the port. Sometimes the vessel does not come into port at said time, making planning for border authorities difficult. Border checks, as well as vessel and crew list controls, are often carried out on ship or in the port, outside physical installations. The member states differ in weather conditions, in Norway temperatures can fall below minus 30 degrees Celsius and in the north the winter season sees little sunlight.

In southern countries heat and sunlight pose other challenges. In general, there is higher volume of special cases, and need of exception processing with regards to border control of cargo and fish boats. How much of the special cases that should be handled by defining special procedures/processes vs. technical adjustments needs to be discussed.

To be able to perform border checks and registration of the TCN into EES, as well as vessel and crew list control, the vessel's master have to notify of crew and passenger lists and the lists have to be checked in SIS, Interpol and National Databases in advance. There is also a need to explore the possibility for the member states to reduce the number of ports allowing for border crossings. Further, the possibility should be explored, of performing border checks on embarking/disembarking passengers and crew in nearby fixed sites, such as airports, larger ports, police stations etc. In such a case the agent or master of the ship could be required to transport the persons to the border check location.

## 6. Solutions

This section defines for the land and the sea borders, a short description of possible processes that could be implemented at the border crossing point and then derive the possible technical solutions supporting them.

These processes are taking into account the need of proceeding with an enrolment or a verification of the TCN biometrical data during the border crossing.

### 6.1. Processes

#### 6.1.1. Land Borders

From the discussion on the processes, it resulted that having the solution where the travellers have to leave their vehicle to be verified is the most adequate for the Border Crossing Points having the required space to host that infrastructure, however, this will have to be further studied (see section 7.1.2). The working group shall still assess how the constraint of the space at the land border can be addressed as well as the impact on the capacity of the BCP staff to allow proper monitoring of the passenger flow within the BCP area.

Regarding the train, the working group arrived to the conclusion that mobile equipment will be the most adequate solution. The requirements for the ICT solution that could be use should take into account the constraint of the network into account.

In order to support these processes, three categories of equipment have been identified:

- Static equipment: this represents unmovable booth deployed in the border crossing point infrastructure. This will be composed of document readers, camera and fingerprint capture devices.
- Mobile equipment: this corresponds to static equipment but deployed in a mobile infrastructure such as a truck, container or bus. It can also be equipment deployed in suitcases and deployed in another infrastructure. Such equipment can be carried in a car and easily deployed depending on the needs. It allows covering border crossing points where the existing infrastructure cannot be expanded or to cover seasonal peaks.
- Hand-Handheld equipment: equipment that can be carried by a border guard. Compare to the mobile equipment, the handheld equipment shall be small enough to be used on the move by a border guard.

#### 6.1.2. Sea Borders

##### Cruise Vessels

The following processes have been identified regarding the sea borders.

1. Static Equipment:  
Depending on port facilities, border checks can be performed at the terminal using static booths. The number of booths must be in accordance with the number of passengers to be checked. All cruise vessels facilitate a list of passengers/crew members, at least 24 hours in advance, which can be crosschecked with national/international databases (VIS, SIS, INTERPOL, national crime records, etc.). Furthermore, if the vessel is coming from a Schengen port, the previous port must inform about any important change in the list or the presence of those passengers subject to a specific control or not allowed to disembark. This information facilitates and speeds up all checks at the booths.  
No specific booths are required for this check. Same airport procedures and technical equipment can be applied: double booths, e-gates, self-service kiosks etc.
2. Mobile Equipment:  
When there are no facilities to install booths, truck booths can perform border checks. This is a good solution for those ports with a big number of cruise vessels/passengers and seasonal peaks

both for land and sea borders. Truck booths may be equipped with document examination tools in the case there are no existing border crossing point with a second line in a near area.

3. **Hand-Handheld Equipment:**

These devices can support mobile and static controls when a high number of passenger must be checked. They are also useful for on board checks on trains and ferries.

### Ferries

Due to the fact that all ferries operate following a timetable and a specific route, those vessels subject to border checks must be docked only at those static/mobile booth-provided ports.

There will be a two-channel control: one for pedestrians and a second one for passengers travelling by any other transportation mean (car, bus, van, etc.).

### Pleasure Boats/Yachts/Fishing Boats

Many pleasure and fishing boats operate on remote marinas or secondary ports with no BCP. According to Schengen Handbook (C(2006) 5186 final), "Section IV : Sea borders, 3.3 A pleasure boat coming from a third State may, exceptionally, enter a port which is not a Border crossing point. In these cases, the persons on board must notify the port authorities in order to be authorised to enter this port. The port authorities must contact the authorities in the nearest port designated as border crossing point in order to report the vessel's arrival. The declaration regarding passengers must be made by lodging the list of persons on board with the port authorities. This list must be made available to the border guards, at the latest upon arrival. Likewise, if for reasons of force majeure the pleasure boat coming from a third State has to dock in a port other than a border crossing point, the port authorities must contact the authorities in the nearest port designated as a border crossing point in order to report the vessel's presence".

To perform border checks on remote marinas and/or fishing ports, the following technical equipment will be required:

- Mobile Equipment provided with communication system (radio and Internet connection), laptop, scanner and all kind of technical devices to check documents (lamps, magnifiers, lens, filters, microscope, OCR and NFC readers, etc.);
- Hand-Handheld Equipment.

## 6.2. Technical solution requirements

Based on the different elements defined in the sections 4-Land border Processes and 5-Sea border Processes, two categories of equipment have been identified: static equipment and mobile/hand-handheld equipment. These two categories are applicable to land and sea borders.

The following sections are providing the technical specifications (requirements) for these technical equipment.

### Static equipment:

In this case, the same equipment as at air borders can be used.

The equipment to be deployed shall meet the following requirements:

- Capture 4 fingerprints with a nominal resolution of either 500 or 1000 ppi (with an acceptable deviation of +/- 10 ppi) with 256 grey levels and in accordance with the ANSI/NIST-ITL 1-2011 Update 2015 standard (or newer version)
- Capture colour facial images with a nominal resolution (in portrait mode) of minimum of 600 pixels by 800 pixels and maximum of 1200 pixels by 1600 pixels with a distance between eyes of minimum 120 pixels and in accordance with the requirements of ISO/IEC 19794-5:2011 Frontal image type
  - The camera shall allow the capture of all individuals. It could therefore be mobile on rails to allow correct alignment.

- Read the travel document information by an error proof scanning mechanism and by means of Near Field Communication (NFC) to extract the data from the chip

This equipment can be either at a booth or within a Self-Service System.

#### **Hand-Handheld equipment:**

The main characteristics of the hand-handheld equipment are:

- The equipment must be battery-powered
- Must ensure safety for the border guards, must be able to release in case of falling into water during border controls on board in case of sea borders. Allow the border guard to remain free of movement;
- Preferably possible to store data locally when there are problems with internet connection. When connection is obtained, the data is centrally stored and controlled against defined registers.
- Equipment that is usable in different weather and light conditions;
  - from strong cold (up to minus 30 degrees Celsius) to strong heat
  - rain, wind, snow, sun etc.
  - strong sunlight, shadow and darkness (no sunlight)
  - indoors and outdoors environments, on moving vessel
- Equipment that ensures capturing biometric data with the required level of quality
- Equipment must be easy and quick to set up and make ready for use (establishing the border control point).
- Ensure secure network connections, also on board vessels. Safe communication channel. We recommend to integrate this device in TETRA, but speed must be increased. A secondary channel (using mobile phone structure like LTE, 4/5G, etc.) should be provided for remote checks where TETRA is not available.

Based on the above characteristics, the following requirements have been derived:

- battery-powered
  - high capacity 8-12 hours
  - removable/swappable batteries and additional set of batteries per device
  - fast charging
- small size (equivalent to a big smartphone or a small tablet)
- the following elements shall be embedded into the same devices
  - camera with dedicated flashes<sup>1</sup> to allow the capture of colour facial images with a nominal resolution (in portrait mode) of minimum of 600 pixels by 800 pixels and maximum of 1200 pixels by 1600 pixels with a distance between eyes of minimum 120 pixels and in accordance with the requirements of ISO/IEC 19794-5:2011 Frontal image type
  - fingerprint scanner allowing the capture 4 fingerprints with a nominal resolution of either 500 or 1000 ppi (with an acceptable deviation of +/- 10 ppi) with 256 grey levels and in accordance with the ANSI/NIST-ITL 1-2011 Update 2015 standard (or newer version)
  - error proof document reader (optical and NFC)
  - lightening feature
- Security
  - support access control for authorized users only
  - protected against radio frequencies perturbations
  - polarised screen to prevent readings by more persons than intended
- Include a GPS to record the exact position of the border check

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<sup>1</sup> As a best practice, it shall be ensure that a diffuse lighting used to avoid shadows or reflection on the face (glasses)





## 7. Recommendations

The working group focused on the technical requirements for the solutions to be used at border crossing points. During that activity, the working group tackled all identified use cases, per business area, the associated technical requirements, as well as a number of processes and proposed an approach to be followed.

It is evident that additional work is still required, this time however in the area of the detailed border control processes, which are, in many cases, dependent on the ICT solutions to be used. The working group therefore strongly recommends that the results illustrated in this document shall be used as input for complementary discussions which shall address extensively the detailed processes themselves and how the border authorities will be prepared to implement them prior to the EES EiO.

Trainings of border authority staff prior to the introduction of EES at the borders, using the adequate technologies, is therefore considered as an activity of utmost importance. It is highly recommended that all MS shall ensure that all above activities are addressed in timely manner, as well as training and testing plans shall be in place, in order to allow risk mitigation and proper preparation of the border guards, thus to be better organised to cope with the activities required after the EES EiO and thus ensure a smooth implementation of EES at the EU external borders.

This activity has to be immediately addressed by the MS in cooperation with EBCGA (Frontex). As these discussions are considered as out of the scope of the current working group configuration, the following sections are defining the areas that shall be further investigated in that context. In addition, it is important that EBCGA (Frontex) and Member States to assess how the business continuity at the border can be achieved from a process point of view.

### 7.1. Land Borders

The introduction of the EES will have an impact on the length of the queues and the waiting time at the borders. This is mainly due to the additional tasks that have to be performed (mainly the enrolment of biometric data). Therefore, to ensure a smooth border crossing experience, it is important that MS are ensuring possible filtering of the traveller flows.

#### 7.1.1. Pedestrians

In the case of pedestrians, booths located in a building that allow the verification of the traveller in a controlled environment is recommended. This recommendation is already in place in several border crossing points and adapting it to the EES Regulation needs is not seen as an issue.

#### 7.1.2. Cars, Trucks and Coaches

This case might require an adaptation of the border crossing point as it is recommended to ensure that the verification process is performed in correct (controlled) conditions, which might require that the travellers get out of their vehicle and present themselves in front of the border guard. In order to optimise the space and the time, pre-enrolment stage can be foreseen, if the overall space available at the border crossing points allows it or by means of national application available on mobile/web site allowing the traveller to pre-register earlier. Such a recommendation guarantees the optimal conditions for capturing the biometric data; however, it might have a significant impact on the border. In the event a horizontal expansion cannot be foreseen, a vertical expansion of the booths could be envisaged (especially when coping with coaches).

It is recommended to validate the above approaches that a pilot project is organised in a large border crossing point to assess the impact passenger leaving their vehicle could have on the passenger flow.

---

## 7.2. Sea Borders

### 7.2.1. Ferries and cruise ships

Further investigations shall be performed to assess the need of negotiating with the carriers the possibility to have a pre-registration during the journey by means of kiosks. This will allow speeding up the disembarking while ensuring the capture of the information in controlled environment.

### 7.2.1. Cargo/Fish boat

The process to determine if the TCN is subject to EES according to the elements defined in the Schengen Border Code shall be further discussed as seamen (TCN) are exempted from EES only in accordance with point 3 of annex VII SBC (Art. 6a (3)(g)(iii) SBC). This will be explained in the EES Handbook.

## 7.3. Other

### 7.3.1. Pre-registration capabilities

There is a study which concluded that “pre-registration” by repeat travellers who already have an individual file in EES could be used to optimise the TCN flow in a Border Crossing Point by directing the traveller to a “fast lane”.

The study report can be obtained up on request via the European Commission.

The applicability of such approach shall be further analysed.

# 8. Annexes

## 8.1. Use Cases

This section is first describing the general use case of the verification at the border (Article 23 of EU Regulation 2017/2226).

Afterwards, specific Use Cases will be described depending on the context they are applied (land border, sea border, TCN traveling by car, coach...).

### 8.1.1. Article 23: Use of data for verification at the borders

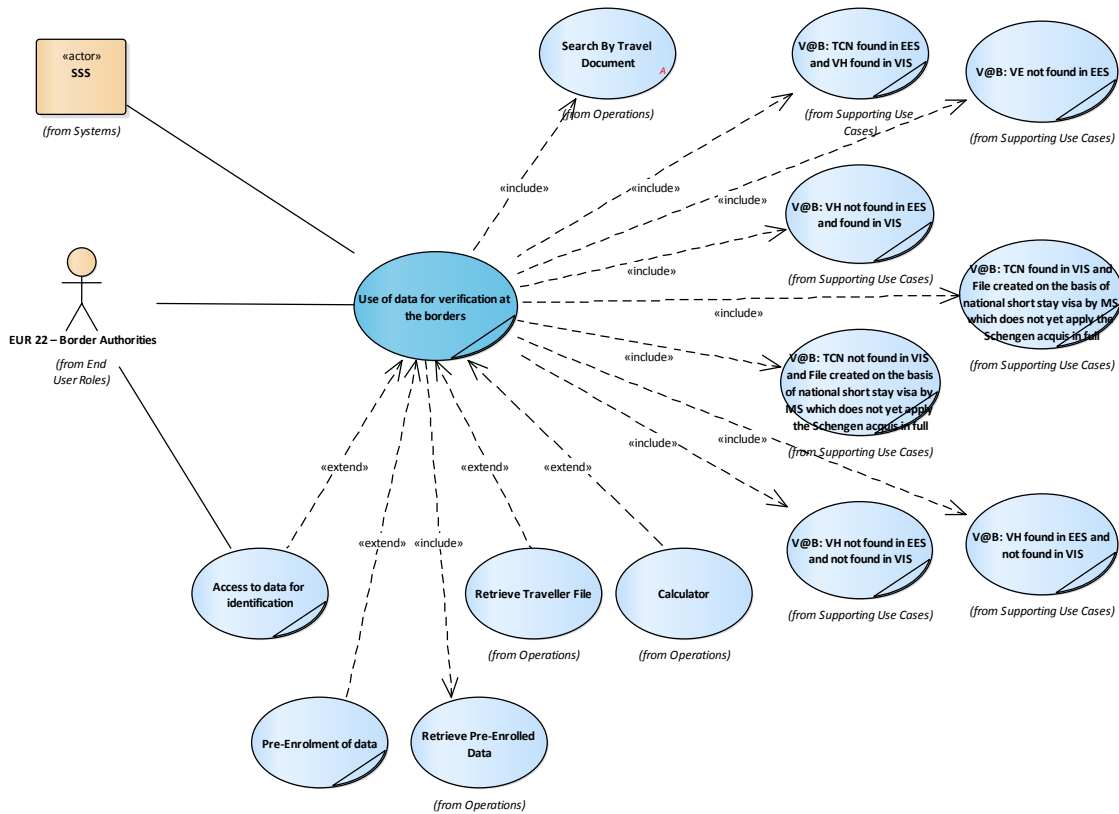


Figure 1: Use of data for verification at the borders

<b>Business Use Case name</b>	<b>Use of data for verification at the borders</b>
<b>Description</b>	<p>The objective of this Use Case is to implement Article 23 Use of data for verification at the borders at which the EES is operated.</p> <p><i>Border authorities shall have access to the EES for verifying the identity and previous registration of the third-country national, for updating into the EES data where necessary and for consulting the data to the extent required for the performance of border checks.</i></p>



**Green** and **red** paths indicated on the activity diagram are paths which are expected to be followed the most often and should be implemented as efficient as possible:

- The **green** path represents the case when the traveller is found in EES and his identity can be verified easily. This path would be applicable for all exits where entry was registered in EES and for entries of frequent travellers.

- The **red** path represents the case when the traveller is not found in EES. This path would be applicable for all travellers coming to Europe not more often than once every three years.

### 8.1.1.1. Inputs and outputs

#### Required Information

1. Data of Responsible User who performs Business Use Case.
2. TCN Travel Document data.
3. TCN biometrics data (except TCNs having access to the applicable NFP).
4. Additional information about TCN:
  - visa related data,
  - FTD related data.
5. Is it entry or exit?
6. Indicator whether VIS interoperability should be used.

#### Results

1. Information whether TCN Travel Document is already registered in EES.
2. For TCN whose Travel Document was registered in EES the status of the biometric verification.
3. For TCN whose Travel Document was not registered or who did not pass biometric verification the status of biometric identification.
4. For TCN who is registered in EES Traveller File data together with travel history, Flags and results of the Calculator.
5. When VIS interoperability is used:
  - Information whether TCN visa was found in VIS.
  - For TCN whose visa was found in VIS the status of the biometric verification.
  - For TCN whose visa was not found in VIS or who did not pass biometric verification the status of biometric identification.
  - For TCN who is registered in VIS visa information data.

### 8.1.1.2. Scenarios

#### 8.1.1.2.1. Basic Path

Scenario steps:	Expected results:
<ol style="list-style-type: none"> <li>1. NS collects TCN alphanumeric data from the travel document.</li> <li>2. NS ensures that pre-enrolment data is not registered performing "Retrieve Pre-Enrolled Data" operation.</li> </ol>	<p>Data for alphanumeric search collected.</p> <p>Data is not pre-enrolled.</p>
<b>Alternate / exception scenarios:</b>	
<ol style="list-style-type: none"> <li>2a. Data was pre-enrolled by SSS.</li> </ol>	<p>Perform Exception scenario and go to step End.</p>
<ol style="list-style-type: none"> <li>3. NS performs "Search By Travel Document" operation with Operation Modifier Auto (in case VIS Interoperability is being used) or EES (when NS performs VIS operations directly in VIS).</li> </ol>	<p>Search By Travel Document performed.</p>
<ol style="list-style-type: none"> <li>4. NS performs "V@B: TCN found in EES and VH found in VIS" Use Case.</li> </ol>	<p>Supporting Business Use Case is performed.</p>
<b>Alternate / exception scenarios:</b>	
<ol style="list-style-type: none"> <li>4a. VE not found in EES.</li> </ol>	<p>Perform Alternate scenario and go to step 5.</p>
<ol style="list-style-type: none"> <li>4b. VH not found in EES and found in VIS.</li> </ol>	<p>Perform Alternate scenario and go to step 5.</p>
<ol style="list-style-type: none"> <li>4c. TCN not found in VIS and File created on the basis of national short stay visa by MS which does not yet apply the Schengen acquis in full.</li> </ol>	<p>Perform Alternate scenario and go to step 5.</p>
<ol style="list-style-type: none"> <li>4d. TCN found in VIS and File created on the basis of national short stay visa by MS which does not yet apply the Schengen acquis in full.</li> </ol>	<p>Perform Alternate scenario and go to step 5.</p>
<ol style="list-style-type: none"> <li>4e. VH not found in EES and not found in VIS.</li> </ol>	<p>Perform Alternate scenario and go to step 5.</p>
<ol style="list-style-type: none"> <li>4f. VH found in EES and not found in VIS.</li> </ol>	<p>Perform Alternate scenario and go to step 5.</p>
<ol style="list-style-type: none"> <li>5. If Calculator values are missing then the NS performs operation "Calculator".</li> </ol>	<p>Calculator values are received by NS.</p>
<ol style="list-style-type: none"> <li>6. NS delivers data for consultation.</li> </ol>	<p>Data for consultation delivered.</p>
<b>Alternate / exception scenarios:</b>	
<ol style="list-style-type: none"> <li>6a. Additional identification required.</li> </ol>	<p>Perform Exception scenario and go to step 5.</p>

6b. Next page of matching Files.	Perform Exception scenario and go to step 5.
6c. Retrieve details for selected File.	Perform Exception scenario and go to step 5.

End. End of scenario.

#### 8.1.1.2.2. Additional identification required

##### Scenario steps:

1. NS performs "Access to data for identification" Use Case with Operation Variant "Use of data for verification at the borders".

##### Expected results:

Access to data for identification performed.

End. End of scenario.

#### 8.1.1.2.3. VE not found in EES

##### Scenario steps:

1. NS performs "V@B: VE not found in EES" Use Case

##### Expected results:

Verification performed.

End. End of scenario.

#### 8.1.1.3. TCN not found in VIS and File created on the basis of national short stay visa by MS which does not yet apply the Schengen acquis in full

##### Scenario steps:

1. NS performs "V@B: TCN not found in VIS and File created on the basis of national short stay visa by MS which does not yet apply the Schengen acquis in full" Use Case.

##### Expected results:

Supporting Business Use Case is performed.

End. End of scenario.

**8.1.1.3.1. VH not found in EES and found in VIS****Scenario steps:**

1. NS performs "V@B: VH not found in EES and found in VIS" Use Case.

**Expected results:**

Supporting Business Use Case is performed.

End. End of scenario.

**8.1.1.3.2. TCN found in VIS and File created on the basis of national short stay visa by MS which does not yet apply the Schengen acquis in full****Scenario steps:**

1. NS performs "V@B: TCN found in VIS and File created on the basis of national short stay visa by MS which does not yet apply the Schengen acquis in full" Use Case.

**Expected results:**

Supporting Business Use Case is performed.

End. End of scenario.

**8.1.1.3.3. VH not found in EES and not found in VIS****Scenario steps:**

1. NS performs "V@B: VH not found in EES and not found in VIS" Use Case.

**Expected results:**

Supporting Business Use Case is performed.

End. End of scenario.

**8.1.1.3.4. VH found in EES and not found in VIS****Scenario steps:**

1. NS performs "V@B: VH found in EES and not found in VIS" Use Case.

**Expected results:**

Supporting Business Use Case is performed.

End. End of scenario.

**8.1.1.3.5. Next page of matching Files****Scenario steps:**

1. NS performs last search or identification operation to deliver next page of Files from operation results.

**Expected results:**

Next page of search results is received.

End. End of scenario.

**8.1.1.3.6. Retrieve details for selected File****Scenario steps:**

1. NS performs "Retrieve Traveller File" operation to present selected File details for consultation.

**Expected results:**

Selected File data retrieved.

End. End of scenario.

**8.1.1.3.7. Data was pre-enrolled by SSS****Scenario steps:**

1. If Pre-Enrolment is required then NS performs "Pre-enrolment of data" business use case.

**Expected results:**

End. End of scenario.



### 8.1.1.4. Scenarios diagram

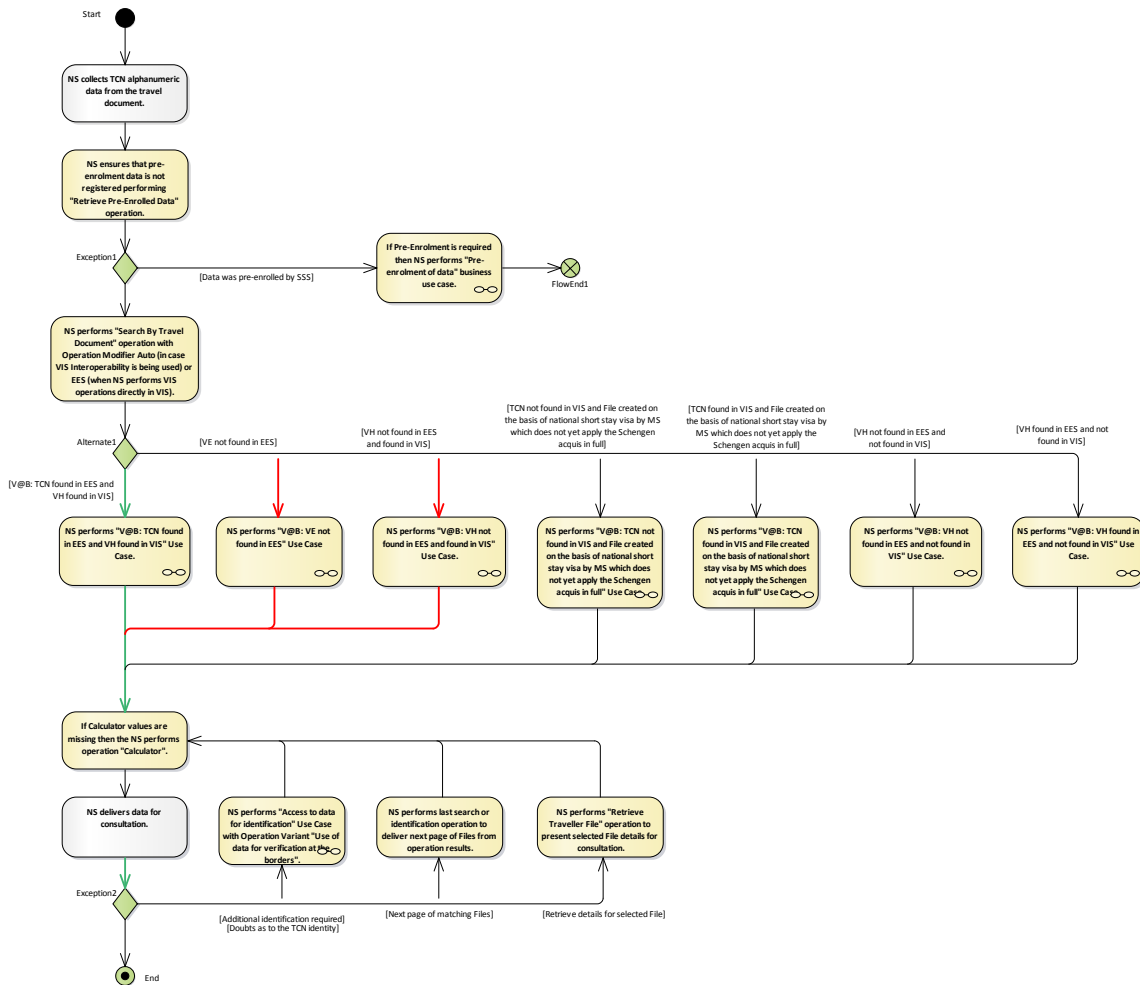


Figure 2: Use of data for verification at the borders

## 8.1.2. Article 23: Supporting Use Cases

### 8.1.2.1. V@B: VE not found in EES

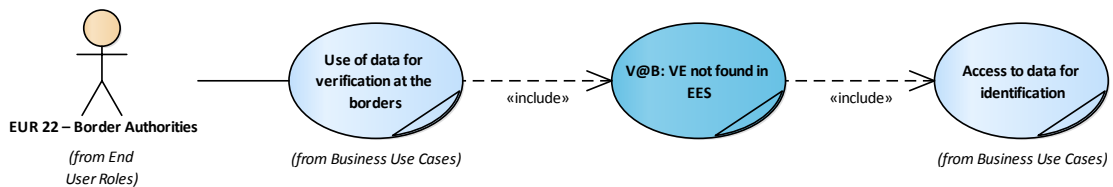


Figure 3: V@B: VE not found in EES

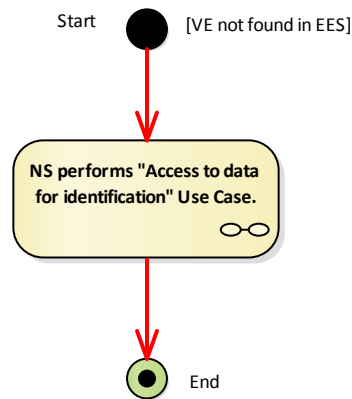
<b>Supporting Business Use Case name</b>	V@B: VE not found in EES
<b>Description</b>	The objective of this Supporting Use Case is to implement Article 23 Use of data for verification at the borders at which the EES is operated in case TCN is VE and was not found in EES.

**8.1.2.1.1. Scenarios**

**8.1.2.1.1.1. Basic Path**

<b>Scenario steps:</b>	<b>Expected results:</b>
<ol style="list-style-type: none"> <li>NS performs "Access to data for identification" Use Case.</li> </ol> <p>End. End of scenario.</p>	<p>Access to data for identification performed.</p>

**8.1.2.1.2. Scenarios diagram**



*Figure 4: V@B: VE not found in EES*

8.1.2.2. V@B: VH not found in EES and found in VIS

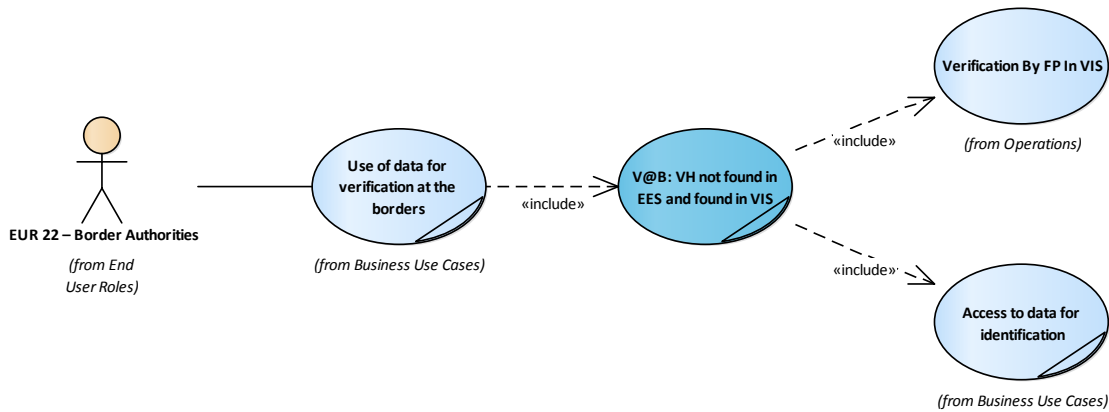


Figure 5: V@B: VH not found in EES and found in VIS

<b>Supporting Business Use Case name</b>	<b>V@B: VH not found in EES and found in VIS</b>
<b>Description</b>	The objective of this Supporting Use Case is to implement Article 23 Use of data for verification at the borders at which the EES is operated in case TCN is VH, was not found in EES and was found in VIS.

8.1.2.2.1. Scenarios

8.1.2.2.1.1. Basic Path

Scenario steps:	Expected results:
1. NS collects TCN fingerprints.	FP collected.
<b>Alternate / exception scenarios:</b>	
1a. TCN fingerprints not available.	Perform Alternate scenario and go to step End.
2. NS performs "Verification By FP In VIS" operation	Verification performed.
3. NS performs "Access to data for identification" Use Case.	Identification performed.
End. End of scenario.	

**8.1.2.2.1.2. TCN fingerprints not available**

Scenario steps:	Expected results:
-----------------	-------------------

1. NS performs "Access to data for identification" Use Case.	Identification performed.
--	---------------------------

End. End of scenario.

**8.1.2.2.2. Scenarios diagram**

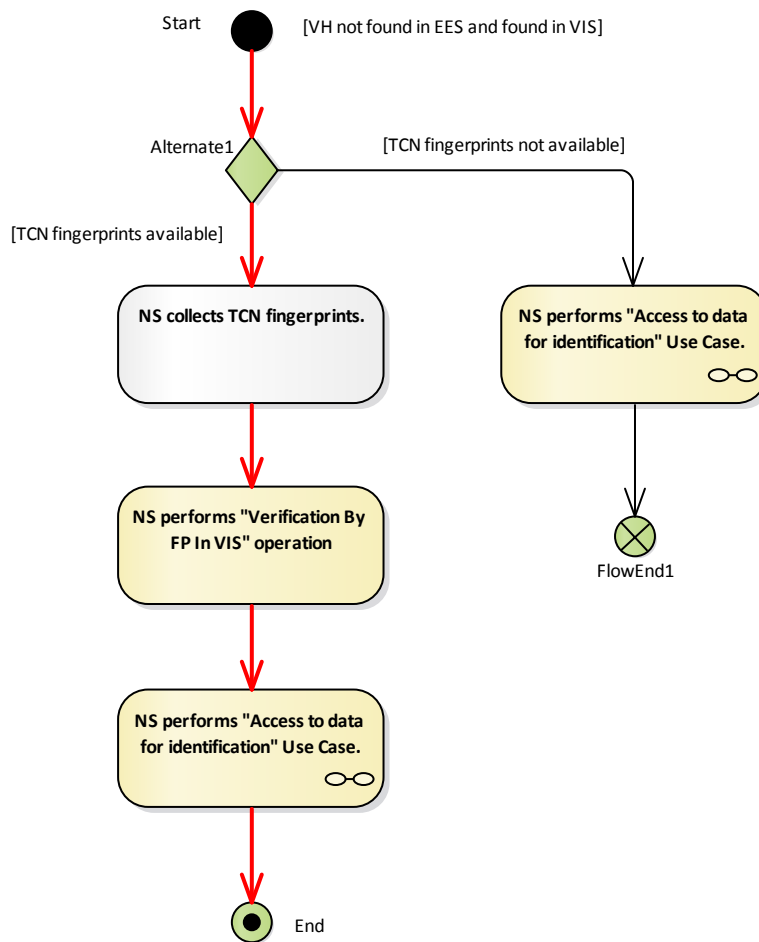


Figure 6: V@B: VH not found in EES and found in VIS

**8.1.2.3. V@B: TCN found in VIS and File created on the basis of national short stay visa by MS which does not yet apply the Schengen acquis in full**

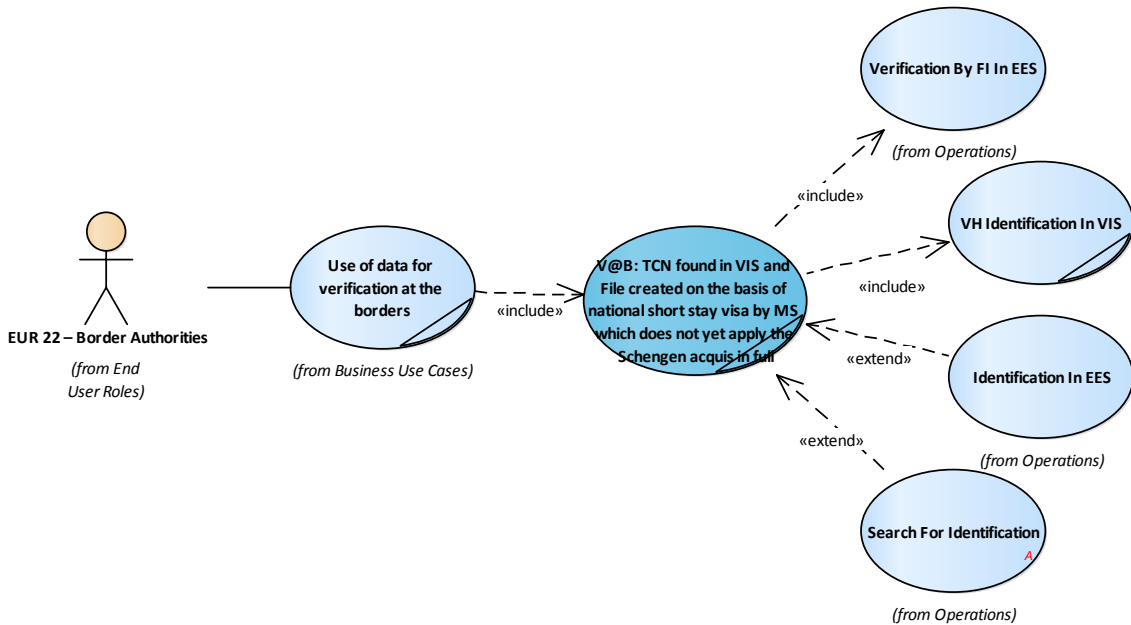


Figure 7: V@B: TCN found in VIS and File created by MS with read only VIS on the basis of national short stay visa

Supporting Business Use Case name	V@B: TCN found in VIS and File created on the basis of national short stay visa by MS which does not yet apply the Schengen acquis in full
Description	The objective of this Supporting Use Case is to implement Article 23 Use of data for verification at the borders at which the EES is operated in case TCN was found in VIS and his File was created by MS with read only VIS on the basis of national short stay visa.

**8.1.2.3.1. Scenarios**

**8.1.2.3.1.1. Basic Path**

Scenario steps:	Expected results:
1. NS collects TCN FP and live facial image if available.	Biometric data collected.
2. NS performs "Verification By FI In EES" operation.	Verification performed.
<b>Alternate / exception scenarios:</b>	
2a. FI verification failed, FP available.	Perform Exception scenario and go to step 3.
2b. FI verification failed, FP not available.	Perform Exception scenario and go to step 3.

3. NS performs "VH Identification In VIS" Use Case.

Supporting Business Use Case is performed.

End. End of scenario.

#### 8.1.2.3.1.2. No match VE FI verification and FP available

##### Scenario steps:

1. NS collects TCN fingerprints.

##### Expected results:

FP are collected.

End. End of scenario.

#### 8.1.2.3.1.3. FI verification failed, FP available

##### Scenario steps:

1. NS performs "Identification In EES" operation.

Identification In EES operation is performed.

2. If identification in EES failed NS prepares data for Search For Identification in EES.

Data for Search For Identification prepared.

3. If identification in EES failed NS performs "Search For Identification" operation

Search For Identification operation is performed.

End. End of scenario.

#### 8.1.2.3.1.4. FI verification failed, FP not available

##### Scenario steps:

1. NS collects data for Search For Identification.

Data for Search For Identification collected.

2. NS performs "Search For Identification" operation.

Search For Identification performed.

End. End of scenario.

### 8.1.2.3.2. Scenarios diagram

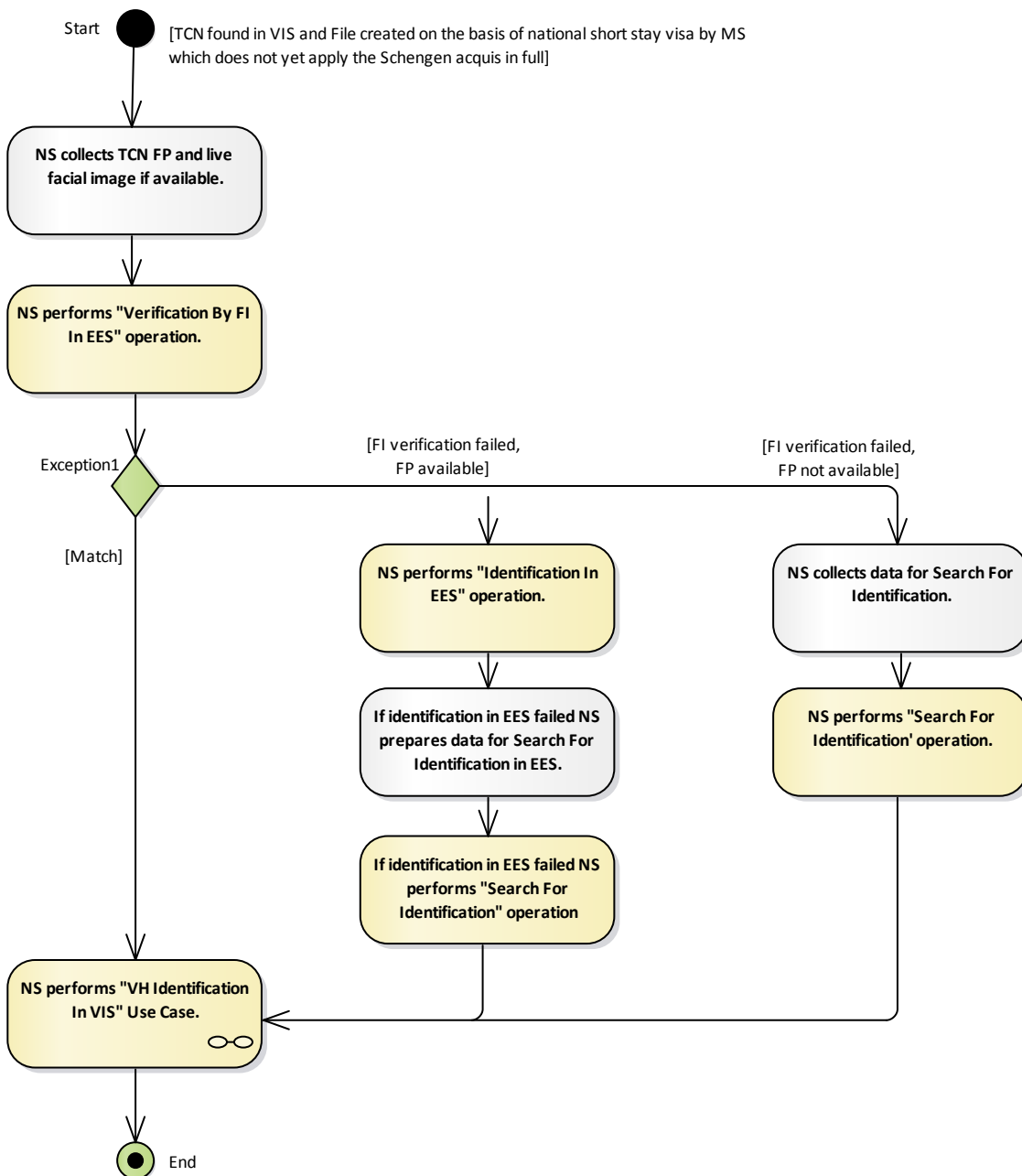


Figure 8: V@B: TCN found in VIS and File created by MS with read only VIS on the basis of national short stay visa

### 8.1.2.4. V@B: TCN not found in VIS and File created on the basis of national short stay visa by MS which does not yet apply the Schengen acquis in full

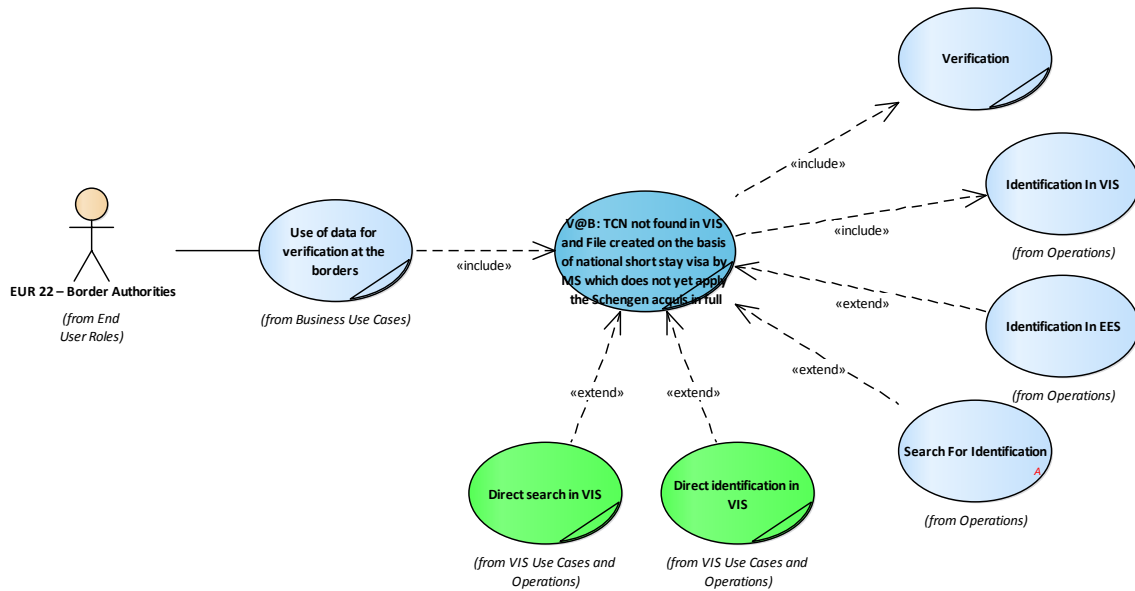


Figure 9: V@B: TCN not found in VIS and File created by MS with read only VIS on the basis of national short stay visa

<b>Supporting Business Use Case name</b>	<b>V@B: TCN not found in VIS and File created on the basis of national short stay visa by MS which does not yet apply the Schengen acquis in full</b>
<b>Description</b>	The objective of this Supporting Use Case is to implement Article 23 Use of data for verification at the borders at which the EES is operated in case TCN was not found in EES and his File was created by MS with read only VIS on the basis of national short stay visa.

#### 8.1.2.4.1. Scenarios

##### 8.1.2.4.1.1. Basic Path

Scenario steps:	Expected results:
1. NS collects TCN live facial Image.	FI collected.
2. NS performs "Verification" Use Case with FI for first run and FP for second run.	Verification performed.
<b>Alternate / exception scenarios:</b>	
2a. No match VE FI verification and FP available.	Perform Exception scenario and go to step 2.
3. NS collects TCN fingerprints if needed and available.	FP collected.



**Alternate / exception scenarios:**

- |   |  |
|---|--|
| 3a. VE verification failed and FP available.      | Perform Alternate scenario and go to step 4. |
| 3b. VE verification failed and FP not available.  | Perform Alternate scenario and go to step 4. |
| 4. NS performs "Identification In VIS" Operation. | Identification In VIS operation performed.   |

**Alternate / exception scenarios:**

- |   |  |
|---|--|
| 4a. FP not available or no VIS interoperability - Identification directly in VIS. | Perform Alternate scenario and go to step End. |
| 5. If "Identification In VIS" failed then NS performs "Direct search in VIS".     | Direct search in VIS is performed.             |

End. End of scenario.

**8.1.2.4.1.2. No match VE FI verification and FP available**

Scenario steps:	Expected results:
1. NS collects TCN fingerprints.	FP are collected.

End. End of scenario.

**8.1.2.4.1.3. VE verification failed and FP available**

Scenario steps:	Expected results:
1. NS performs "Identification In EES" operation.	Identification performed.
2. If "Identification In EES" failed then NS collects data for "Search For Identification" operation.	Data for Search For Identification collected.
3. If "Identification In EES" failed then NS performs "Search For Identification" operation.	Search For Identification performed.

End. End of scenario.

#### 8.1.2.4.1.4. FP not available or no VIS interoperability - Identification directly in VIS

**Scenario steps:**

1. NS preforms "Direct identification in VIS".

**Expected results:**

Direct identification in VIS is performed.

End. End of scenario.

#### 8.1.2.4.1.5. VE verification failed and FP not available

**Scenario steps:**

1. NS collects data for Search For Identification.
2. NS performs "Search For Identification" operation.

**Expected results:**

Data collected.

Search For Identification performed.

End. End of scenario.

### 8.1.2.4.2. Scenarios diagram

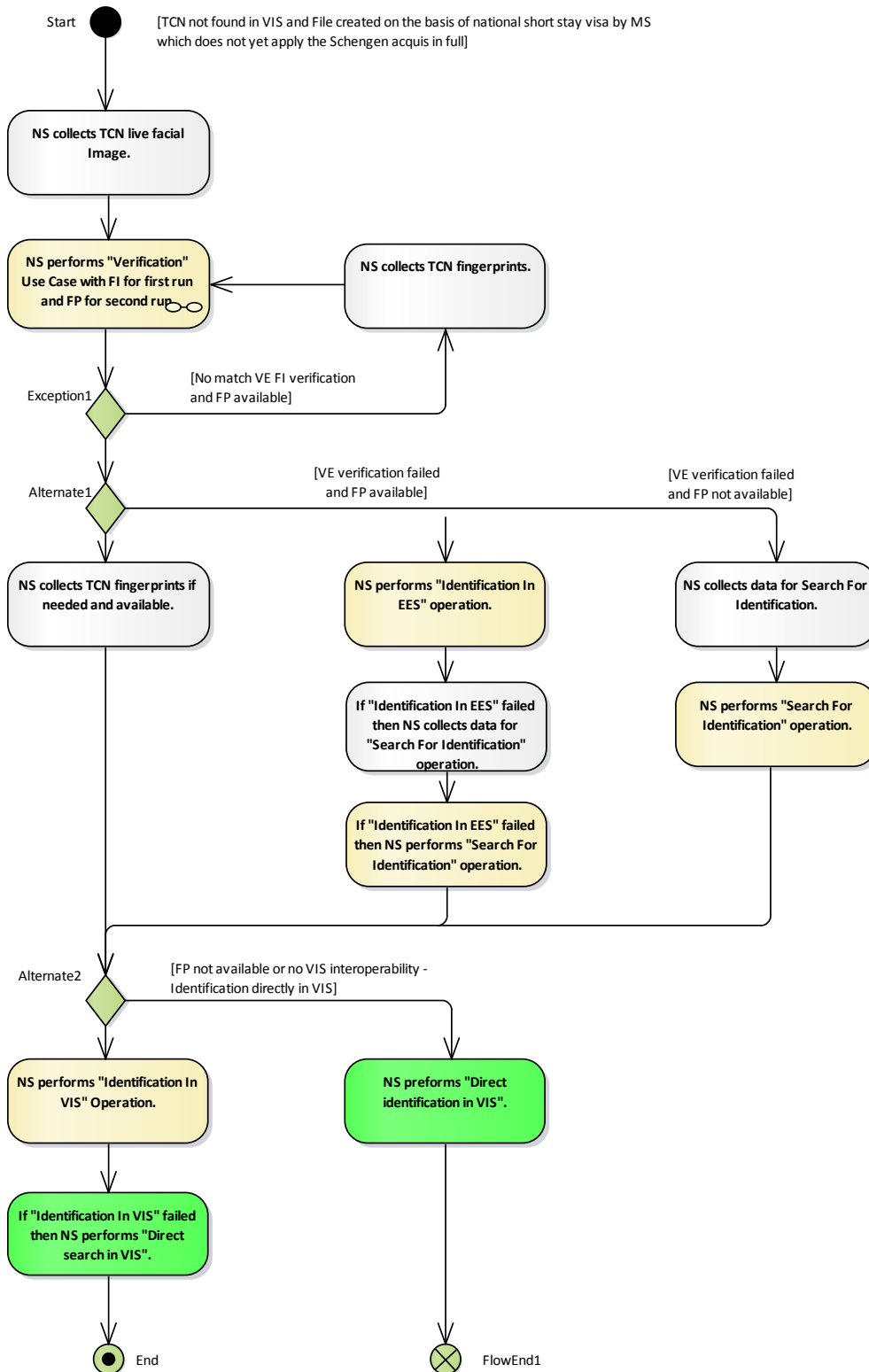


Figure 10: V@B: TCN not found in VIS and File created by MS with read only VIS on the basis of national short stay visa

### 8.1.2.5. V@B: VH not found in EES and not found in VIS

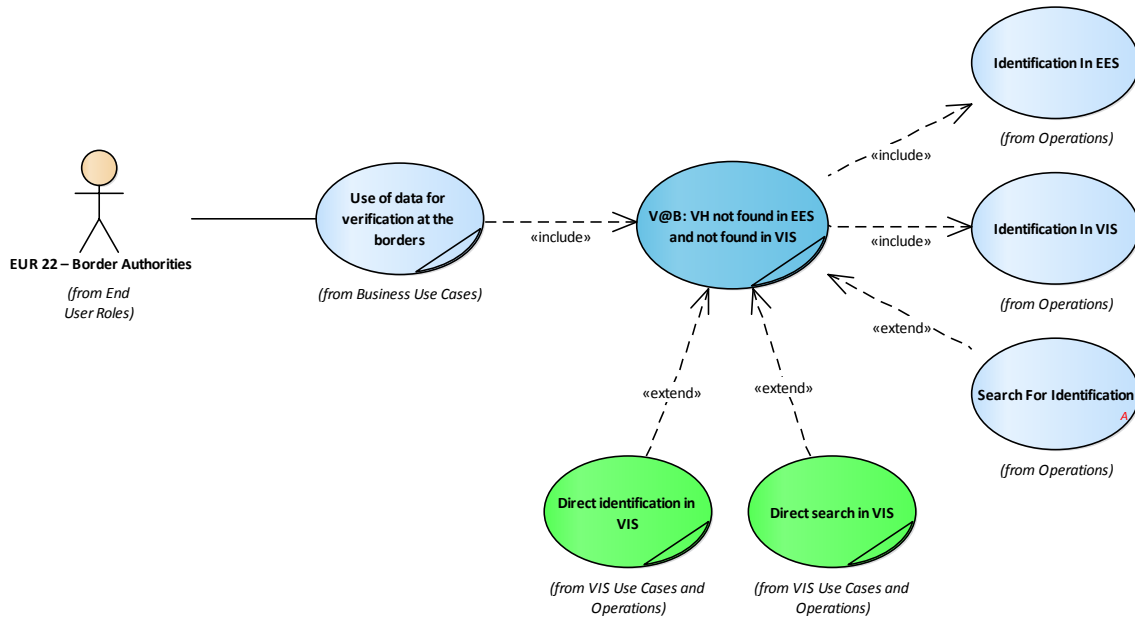


Figure 11: V@B: VH not found in EES and not found in VIS

<b>Supporting Business Use Case name</b>	V@B: VH not found in EES and not found in VIS
<b>Description</b>	The objective of this Supporting Use Case is to implement Article 23 Use of data for verification at the borders at which the EES is operated in case TCN is VH who was not found in EES and was not found in VIS.

8.1.2.5.1. Scenarios

8.1.2.5.1.1. Basic Path

Scenario steps:	Expected results:
1. NS collects TCN FP and live facial Image.	FI collected.
<b>Alternate / exception scenarios:</b>	
1a. FP not available or Identification failed.	Perform Exception scenario and go to step 3.
2. NS performs "Identification In EES" operation.	Identification In EES operation is performed.
<b>Alternate / exception scenarios:</b>	
2a. FP not available or Identification failed.	Perform Exception scenario and go to step 3.
3. NS performs "Identification In VIS" operation.	Identification In VIS operation is performed.

**Alternate / exception scenarios:**

- |   |  |
|---|--|
| 3a. FP not available or no VIS interoperability - Identification directly in VIS. | Perform Alternate scenario and go to step End. |
| 4. If "Identification In VIS" failed then NS performs "Direct search In VIS".     | Direct Identification In VIS is performed.     |

End. End of scenario.

### 8.1.2.5.1.2. FP not available or Identification failed

<b>Scenario steps:</b>	<b>Expected results:</b>
------------------------	--------------------------

- |   |                                      |
|---|--------------------------------------|
| 1. NS collects data for Search For Identification.    | Data collected.                      |
| 2. NS performs "Search For Identification" operation. | Search For Identification performed. |

End. End of scenario.

### 8.1.2.5.1.3. FP not available or no VIS interoperability - Identification directly in VIS

<b>Scenario steps:</b>	<b>Expected results:</b>
------------------------	--------------------------

- |  |  |
|--|--|
| 1. NS performs "Direct identification in VIS". | Direct Identification in VIS is performed. |
|--|--|

End. End of scenario.

8.1.2.5.2. Scenarios diagram

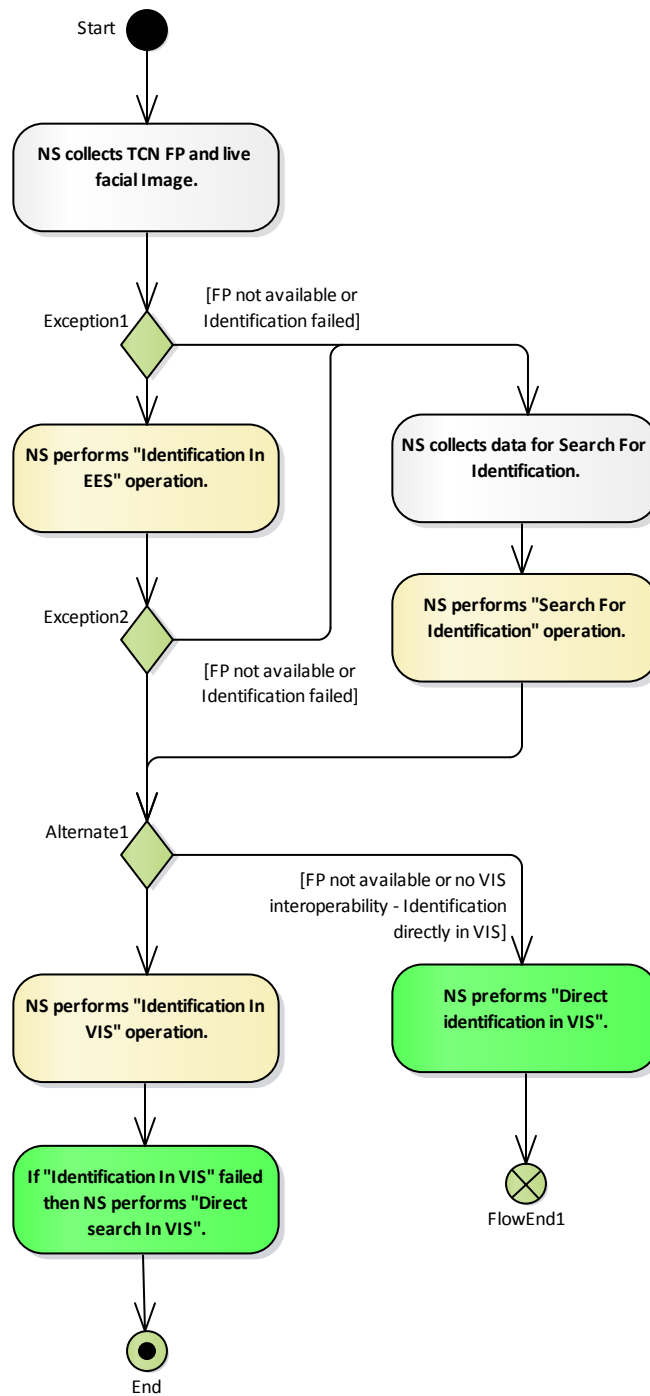


Figure 12: V@B: VH not found in EES and not found in VIS

8.1.2.6. V@B: VH found in EES and not found in VIS

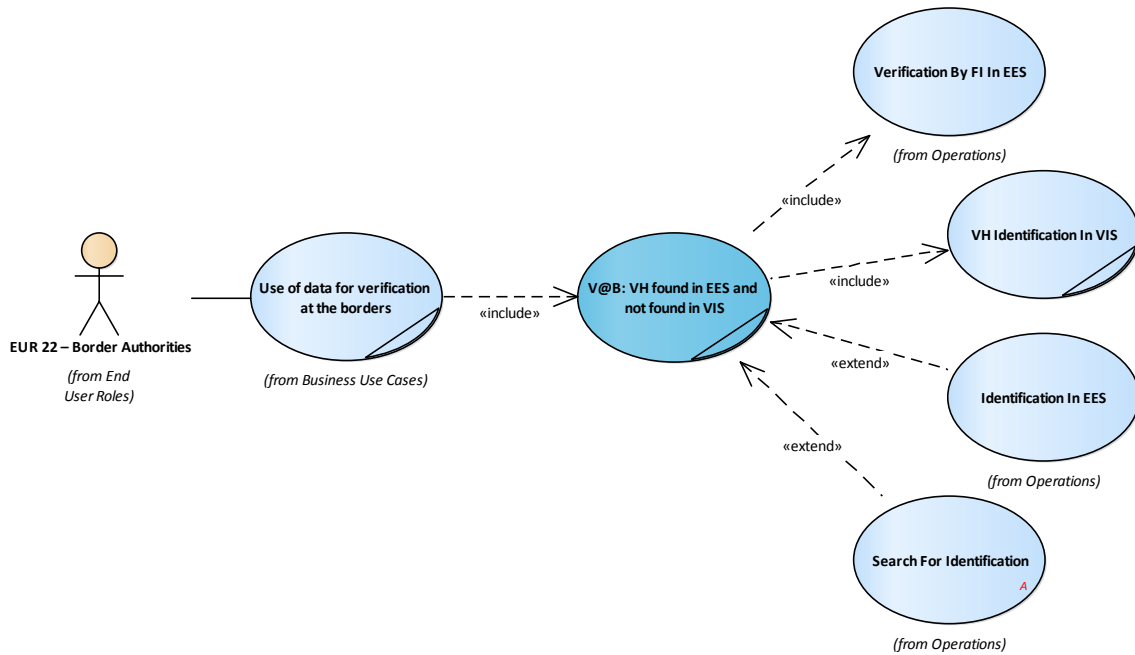


Figure 13: V@B: VH found in EES and not found in VIS

Supporting Business Use Case name	V@B: VH found in EES and not found in VIS
Description	The objective of this Supporting Use Case is to implement Article 23 Use of data for verification at the borders at which the EES is operated in case TCN is VH who was found in EES and was not found in VIS.

8.1.2.6.1. Scenarios

8.1.2.6.1.1. Basic Path

Scenario steps:	Expected results:
1. NS collects TCN FI and FP if possible.	FI and FP are collected.
2. NS performs "Verification By FI In EES" operation.	Verification By FI In EES operation is performed.
<b>Alternate / exception scenarios:</b>	
2a. FI verification failed, FP available.	Perform Exception scenario and go to step 3.
2b. FI verification failed, FP not available.	Perform Exception scenario and go to step 3.

3. NS performs "VH Identification In VIS" Use Case.

Supporting Business Use Case is performed.

End. End of scenario.

#### 8.1.2.6.1.2. FI verification failed, FP available

##### Scenario steps:

1. NS performs "Identification In EES" operation.
2. If Identification In EES failed, NS collects data for Search For Identification in EES.
3. If Identification In EES failed, NS performs "Search For Identification" operation.

##### Expected results:

Identification In EES operation is performed.

Data for Search For Identification collected.

Search For Identification performed.

End. End of scenario.

#### 8.1.2.6.1.3. FI verification failed, FP not available

##### Scenario steps:

1. NS collects data for Search For Identification in EES.
2. NS performs "Search For Identification" operation.

##### Expected results:

Data for Search For Identification prepared.

Search For Identification performed.

End. End of scenario.



8.1.2.6.2. Scenarios diagram

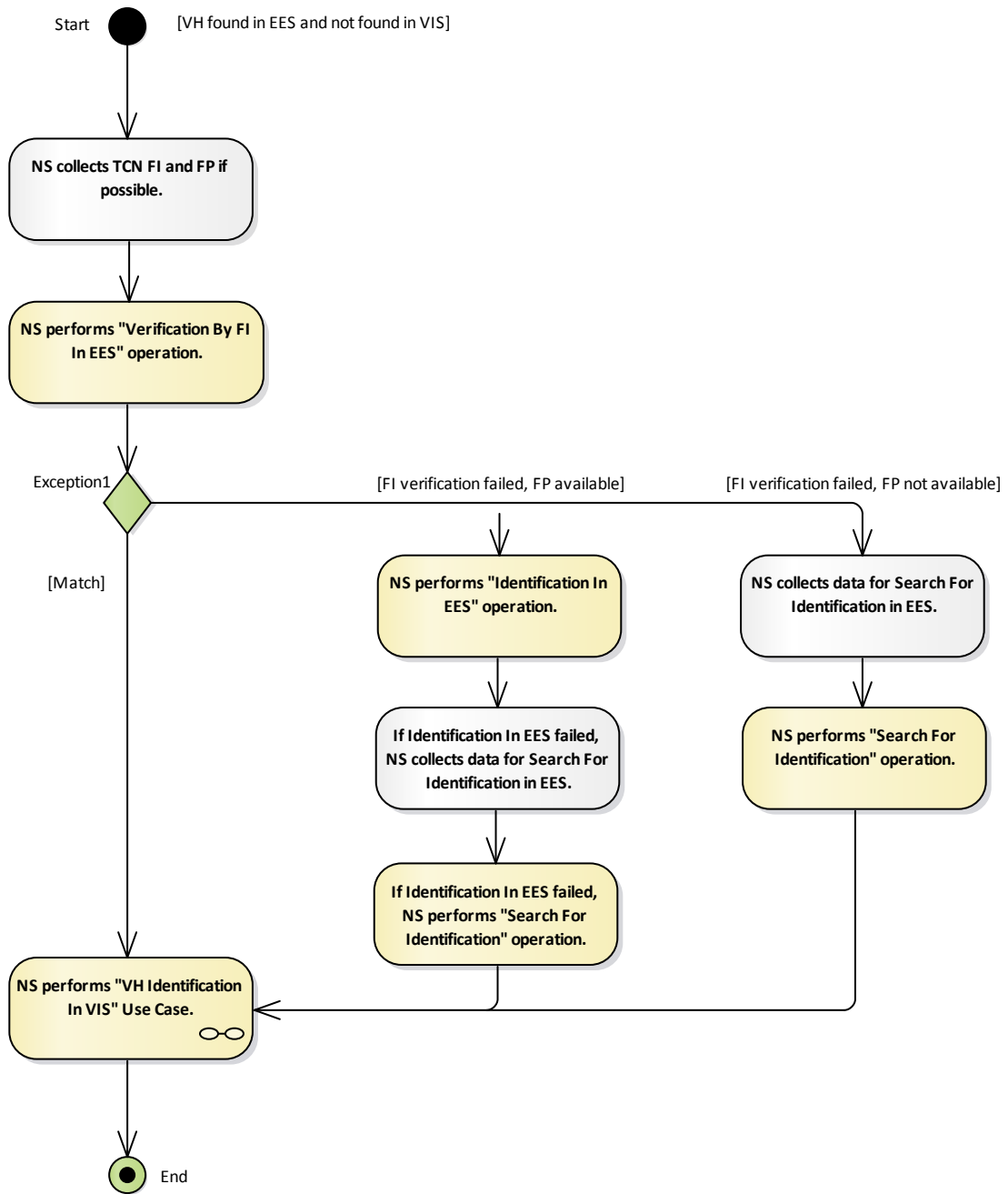


Figure 14: V@B: VH found in EES and not found in VIS

## 8.2. Glossary

Acronym	Definition
BCP	Border Crossing Point
EBCGA	European Border and Coast Guard Agency (Frontex)
EES	Entry/Exit System
MS	Member State
NFC	Near Field Communication
OCR	Optical Character Recognition
PPI	Point Per Inch
RTP	Registered Traveller Programme
SBC	Schengen Border Code
SIS II	Schengen Information System Second Generation
TETRA	Terrestrial Trunked Radio
VIS	Visa Information System