United Nations ECE/TRANS/SC.1/GE.22/2023/5

# Economic and Social Council

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## Economic Commission for Europe

Inland Transport Committee

**Working Party on Road Transport**

**Group of Experts on the Operationalization of eCMR**

**Sixth session**
Geneva, 5–7 July 2023
Item 3 (a) of the provisional agenda
**Programme of work:**
**Proposed concepts and processes of the future eCMR system**

## Proposed conceptual and functional specifications of the future eCMR system / Use Case Analysis

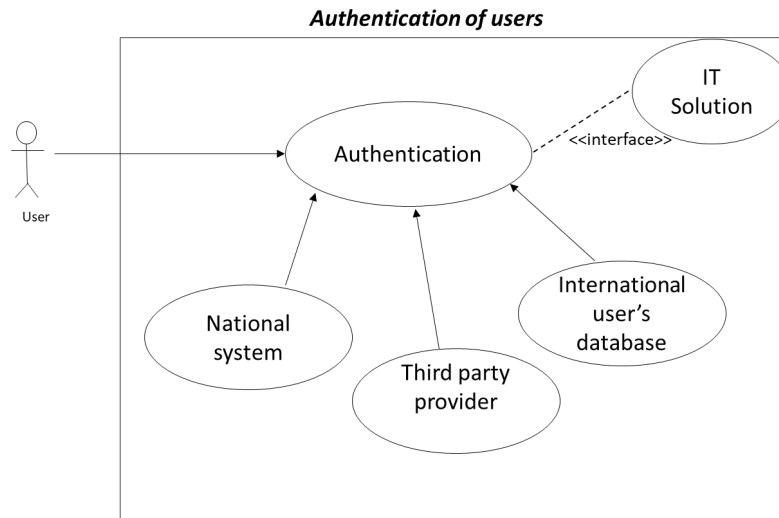### Submitted by the Secretariat and the Group of Experts

## I. Background

1.      At its fifth session, the Group of Experts discussed ECE/TRANS/SC.1/GE.22/2023/3 and ECE/TRANS/SC.1/GE.22/2023/4, provided comments and requested the secretariat to revise these documents based on the discussions of the Group. The concepts and processes when agreed will form the basis of the high-level architecture of the future eCMR system.

2.      The Group of Experts is invited to discuss the revised formal documents prepared for this session.
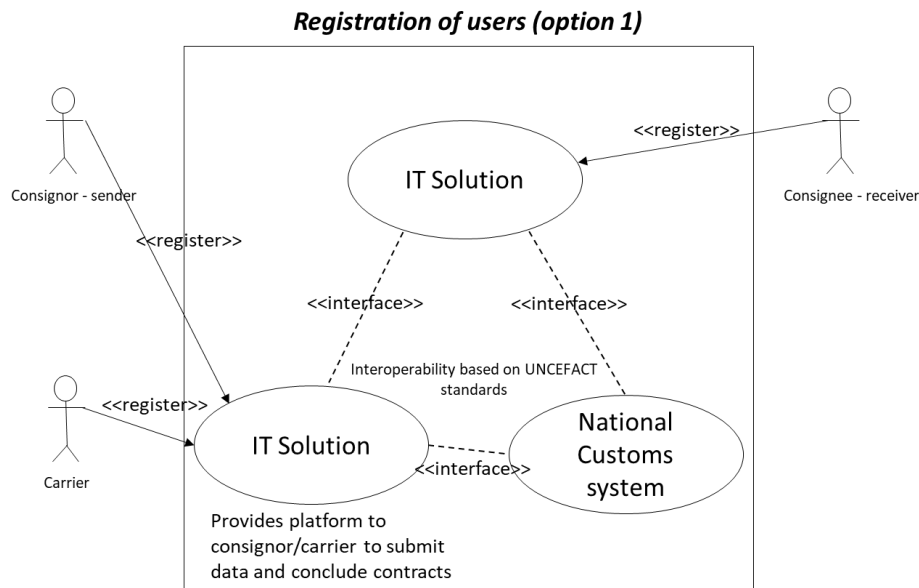
## II. Use cases analysis

3.      The use case analysis provides a high-level view on the interactions (uses) between the actors / users. It is based on the high level architecture discussed and reflects the main processes described in the conceptual and functional specifications of the future eCMR system.
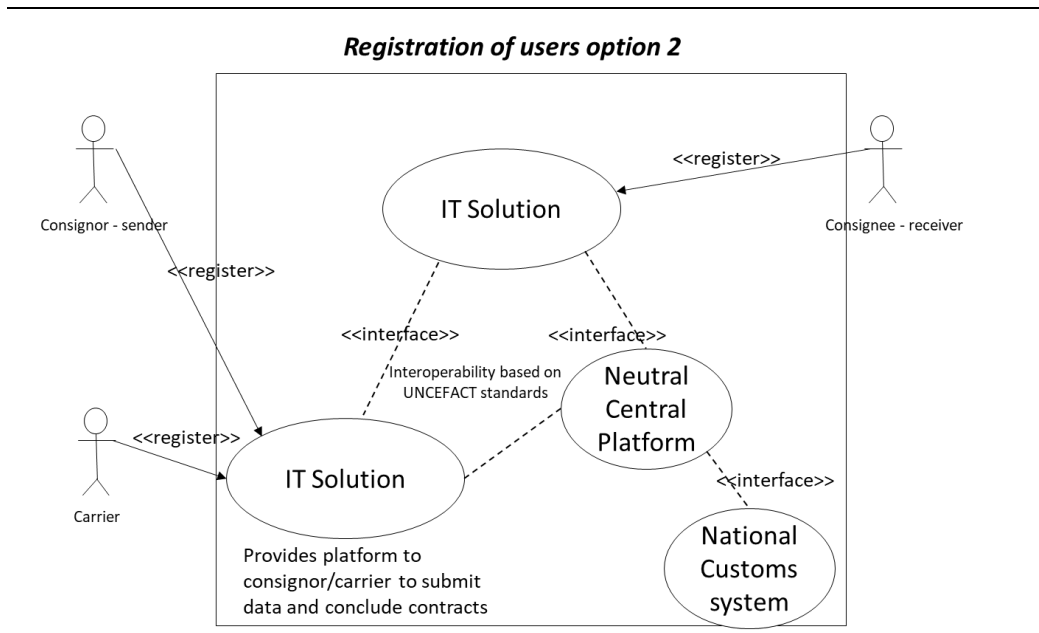
# 1.   Authentication of users



Authentication of users

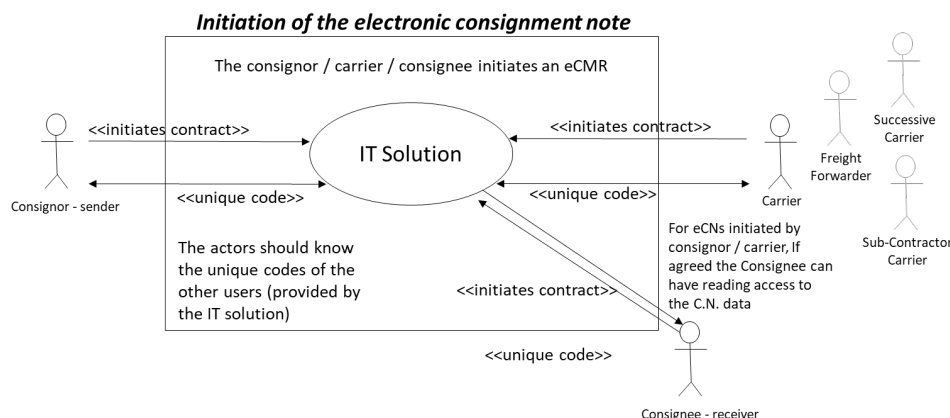| Name | Authentication of users by the National authentication mechanisms use case |
|---|---|
| Description | Each user should be authenticated and prove this authentication by using their national authentication mechanisms. The prove of authentication (unique code?) should be used in order to register at the IT solutions. |
| Actors | Consignor, Carrier, Consignee |
| Performance Goals | Only authenticated users can access and use any IT solution (Proof of authentication might be required). |
| Preconditions | The user is an authorized / authenticated user. |
| Postconditions | The user is allowed to gain access to any IT solution. |
| Scenario | **Authentication**<br><br>The IT solutions should be able to check if the information provided by the user is valid and registered in the national authentication mechanism. |
| Alternative Scenario | **Fallback scenario**<br><br>If the authentication fails for any reason, the user will be informed accordingly. Then the user will be required to rectify the information provided for the authentication to be successful. Also, for future reference, the IT solution should be also informed in case a user is not any more authenticated for several reasons. |
| Special requirements | Required user information for accessing any IT eCMR solution |

## 2.    Registration of users (option 1)



*Registration of users (option 1)*

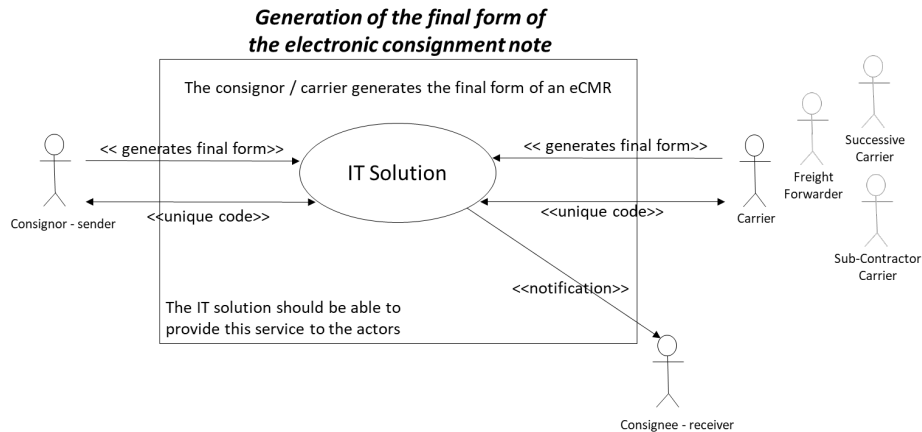| Name | *Registration of users in the IT solutions* |
|---|---|
| Description | Each user should register themselves in the IT solutions of their choice in order to be able to submit, validate and receive data. This also includes the customs authorities. |
| Actors | Consignor – sender, Carrier, Consignee – receiver, Customs authority |
| Performance Goals | - |
| Preconditions | The user who registers in any IT solution should have been first authenticated by its national authentication mechanism and this unique authentication id should be provided for the registration |
| Postconditions | The details of the user are stored in the IT solution with the status "authorized" |
| Scenario | Registration<br><br>The system registers the users with a double factor registration (email and mobile phone) and notifies them with results of the registration. |
| Alternative Scenario | Fallback scenario<br><br>If the registration fails for any reason, the user will be informed accordingly. Then the user will be required to rectify the information provided for the registration to be successful. |
| Special requirements | The users will be able to update their information in the IT solution and keep all relevant to their work files, statistics etc. |

## 3. Registration of users (option 2)

**Registration of users option 2**



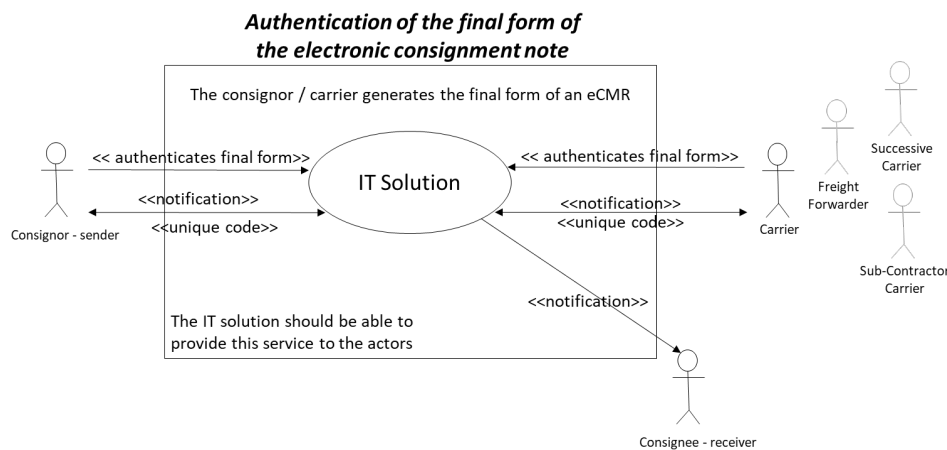| Name | Registration of users in the IT solutions |
| --- | --- |
| Description | Each user should register themselves in the IT solutions of their choice in order to be able to submit, validate and receive data. This option does not include registration of the customs authorities as the option of a central platform have been chosen. The customs systems will be connected in order to receive data with the central platform. |
| Actors | Consignor – sender, Carrier, Consignee - receiver |
| Performance Goals | Actors should be registered once in a system and then to be recognised. |
| Preconditions | The user who registers in any IT solution should have been first authenticated by its national authentication mechanism and this unique authentication id should be provided for the registration |
| Postconditions | The details of the user are stored in the IT solution with the status "authorized" |
| Scenario | Registration |
| | The system registers the users with a double factor registration (email and mobile phone) and notifies them with results of the registration. |
| Alternative Scenario | Fallback scenario |
| | If the registration fails for any reason, the user will be informed accordingly. Then the user will be required to rectify the information provided for the registration to be successful. |
| Special requirements | The users will be able to update their information in the IT solution and keep all relevant to their work files, statistics etc. |

## 4.  Initiation of the electronic consignment note



*Initiation of the electronic consignment note*

| Name | *Initiation of the electronic consignment note use case* |
|---|---|
| Description | The consignor, the carrier or the consignee can initiate an electronic consignment note in the selected IT solution by inserting all relevant information. The party initiating the electronic consignment note should know and use the unique code of the other partners. In some cases, the consignee will be informed for a new electronic consignment note issued, if agreed by the carrier and consignor. |
| Actors | Consignor, Carrier, Consignee |
| Performance Goals | Any electronic consignment note initiated by a consignor, carrier or consignee, shall be registered in the IT solution. |
| Preconditions | The holders of the contract of carriage must be authenticated and registered in the IT solution first before initiating an electronic consignment note. |
| Postconditions | The electronic consignment note initiated is stored in the IT solution with the status "initiated" until the consignor or the carrier will generate the final form of the electronic consignment note. |
| Scenario | **Initiation**<br><br>Once the electronic consignment note has been initiated between the consignor and the carrier or the consignee, the other party will receive an electronic notification that the new electronic consignment note has been initiated requesting their confirmation on the data while providing all the information required by the eCMR consignment note. The consignee, in cases where the carrier or the consignor have initiated the eCN, might not be notified if either of two does not wish to notify the consignee. |
| Alternative Scenario | **Fallback scenario**<br><br>If the eCMR consignment note cannot be sent to the IT solution by mean of any electronic means or web services, no functional fallback is foreseen, and the same information can be sent as soon as it is possible by the party declaring the eCMR consignment note. If the problem persists then either a another platform should be used or a paper consignment note will be prepared. |
| Special requirements | - |

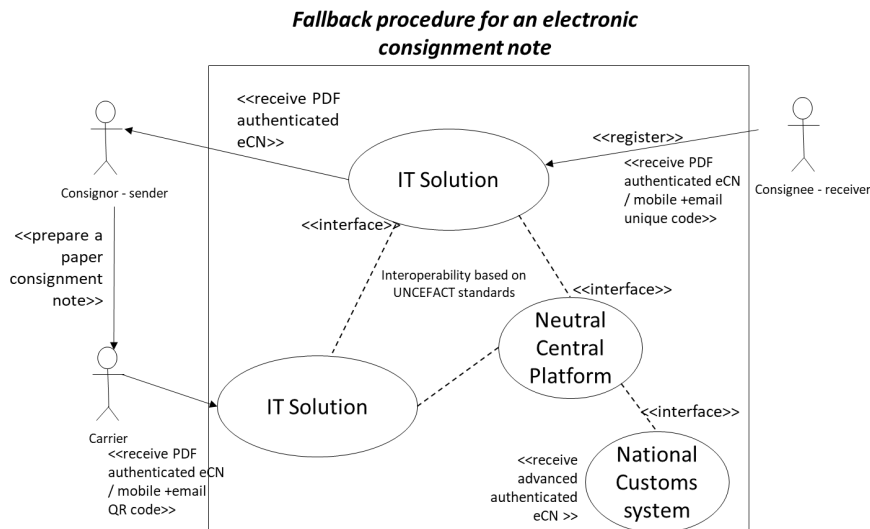## 5. Generation of the final form of the electronic consignment note



*Generation of the final form of
the electronic consignment note*

| Name | *Generation of the final form of the electronic consignment note use case* |
|---|---|
| Description | The consignor and the carrier can generate the final form of the electronic consignment note in the selected IT solution. The party generating the final form of the electronic consignment note should be sure that the data is correct, it has been corrected / agreed by all other parties and that the final form should be generated. The other parties will be informed when the final form has been generated. |
| Actors | Consignor, Carrier |
| Performance Goals | Generation and registration of the final form of the electronic consignment note. |
| Preconditions | The electronic consignment note should have been initiated by any actors and all data has been inserted and corrected. |
| Postconditions | The final form of the electronic consignment note generated is stored in the IT solution with the status "final form" until the consignor and the consignee will authenticate it. |
| Scenario | **Initiation** |
| | Once the electronic consignment note has been initiated and corrected by the different parties, either the consignor or the carrier – independently who has initiated the electronic consignment note – should generate the final form of the electronic consignment note. The other parties (consignor and consignee if agreed) will be notified for the generation of the final form of the electronic consignment note. |
| Alternative Scenario | **Fallback scenario** |
| | If the final form of the eCMR consignment note cannot be generated the system should notify the users for the reasons and direct them on how to fix them. If it is a technical problem then users should be able to electronically address this problem to the administration of the IT solution seeking for an immediate solution. |
| Special requirements | - |

## 6.  Authentication of the final form of the electronic consignment note



**Authentication of the final form of the electronic consignment note**

The consignor / carrier generates the final form of an eCMR

<< authenticates final form>>  —  IT Solution  —  << authenticates final form>>

<<notification>>  <<notification>>
<<unique code>>  <<unique code>>

Consignor - sender  Carrier

Successive Carrier
Freight Forwarder
Sub-Contractor Carrier

The IT solution should be able to provide this service to the actors

<<notification>>
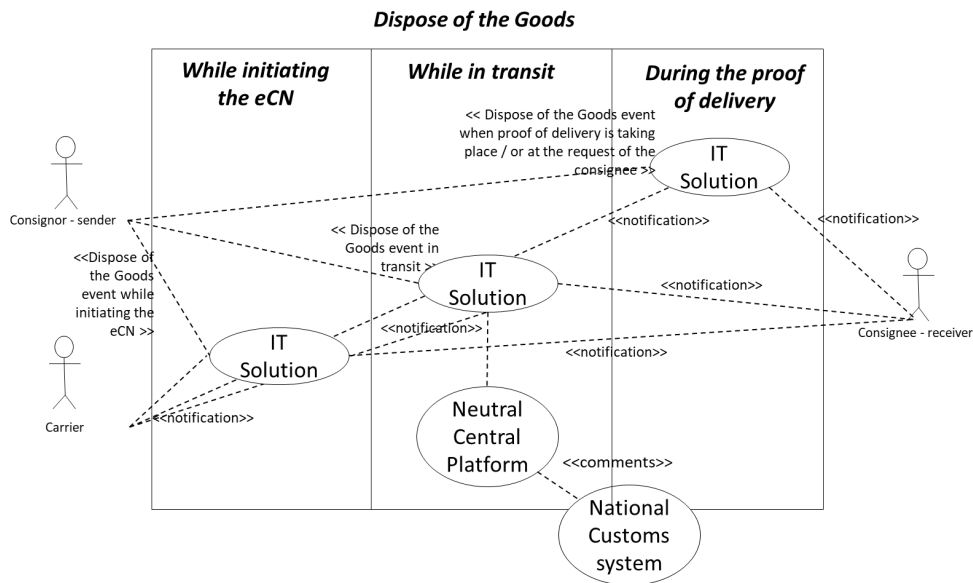
Consignee - receiver

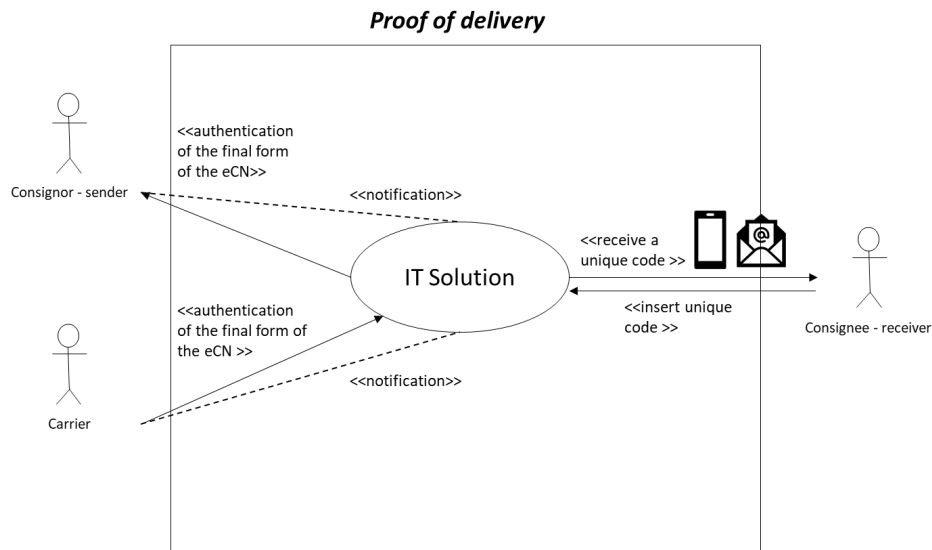| | |
|---|---|
| *Name* | *Authentication of the final form of the electronic consignment note use case* |
| Description | The consignor and the carrier (both) should authenticate the final form of the electronic consignment note in the selected IT solution. The authentication of the final form is the last step in the issuance of an electronic consignment note and then the journey should start. All users should receive a copy of the authenticated final form of the electronic consignment note |
| Actors | Consignor, Carrier |
| Performance Goals | Authentication, registration, and storage of the authenticated final form of the electronic consignment note. |
| Preconditions | The final form of the electronic consignment note should have been generated. |
| Postconditions | The final form of the electronic consignment note generated is stored in the IT solution with the status "authenticated". This file constitutes the original file of the electronic consignment note and the system should safe store it for 10 years. |
| Scenario | **Initiation** |
| | Once the final form of the electronic consignment note has been generated both the consignor and the carrier – independently who has generated the final form of the electronic consignment note – should authenticate the final form of the electronic consignment note. The other party (consignee if agreed) will be notified for the authentication of the final form of the electronic consignment note. |
| Alternative Scenario | **Fallback scenario** |
| | If the final form of the eCMR consignment note cannot be authenticated the system should notify the users for the reasons and direct them on how to fix them. If it is a technical problem, then the users should be able to electronically address this problem to the administration of the IT solution seeking for an immediate solution. |
| Special requirements | - |

## 7. Fallback procedure

**Fallback procedure for an electronic consignment note**



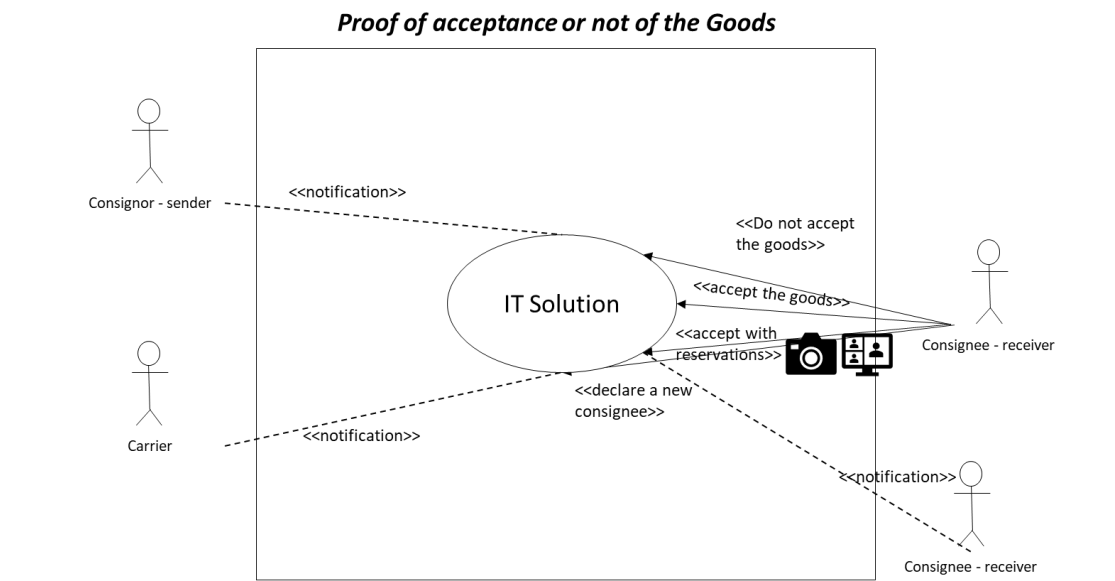| Name | Fallback procedure use case |
|---|---|
| Description | The fallback procedure is of paramount importance for the operations of the future eCMR system when for some reasons the system does not work as designed. |
| Actors | Consignor, Carrier, Consignee, IT Solution, Customs Authorities |
| Performance Goals | Ensure that the market will continue to operate by using the CMR Convention and independently if the consignment note is electronic or not. |
| Preconditions | The fallback procedures are well defined and accepted by all actors. Paper consignment notes can be still used and accepted when the conditions are imposing to. |
| Postconditions | All solutions described are accepted as equivalent to a paper consignment note |
| Scenario | **Initiation**<br><br>When the processes for initiating an eCN / generating a final form of eCN / authenticating the final form of eCN do not function or generate errors or there is no access to internet. Also, when en route there are electricity cuts / no access to internet and authorities cannot check online the consignment note. |
| Alternative Scenario | **Fallback scenario**<br><br>Paper consignment note could be used anytime is required or imposed to. The system should provide an online assistance is required but also will generate PDF files / QR codes / advance CMR information that include all data of eCN to be disseminated to different users in cases of implementation of fallback procedures agreed. |
| Special requirements | - |

# 8.   Dispose of the goods



| Name | Dispose of the goods use case |
| --- | --- |
| Description | The consignor has the right to dispose of the goods while initiating the electronic consignment note, while the cargo is in transit and while the cargo arrived at its destination. In all cases the carrier and the consignee should be informed, and the dispose of the goods process should be always initiated with an authentication of the consignor. |
| Actors | Consignor, Carrier, Consignee, |
| Performance Goals | Ensure that the carrier knows at any time who has the right to dispose the goods and from whom has to take orders. |
| Preconditions | The right of dispose of the goods belongs to the consignor and the consignor is the only one that can initiate this process. |
| Postconditions | The Consignee will have the right to dispose the goods and declare a new consignee if required |
| Scenario | **Initiation**<br><br>The consignor should decide when he/she wants to transfer the right of dispose of the goods to the consignee. The system provides the option the procedure to be initiated at any stage of the journey. |
| Alternative Scenario | **Fallback scenario**<br><br>If the dispose of the goods remains with the consignor then the Convention foresees different ways for the consignee and the carrier to react and request instructions from the consignor. |
| Special requirements | - |

## 9. Proof of delivery

**Proof of delivery**



| Name | Proof of delivery use case |
|---|---|
| Description | At the time the consignment note is concluded online, the consignees receives in their mobile phone / email address a unique code. This code will be asked by the carrier during the delivery of goods to the consignee to be inserted in the system in order to receive delivery of the goods. This will be also the time where the consignee gets the right of disposal of the goods, thereby replacing the receipt of the second copy of the consignment note. This action would trigger notifications to the relevant users that the goods have arrived at their destination.. |
| Actors | Consignor, Carrier, Consignee, |
| Performance Goals | Ensure that the carrier delivers the good at the right consignee. The consignee gets the right of dispose of the goods. |
| Preconditions | The right consignee should have been declared while initiating the electronic consignment note with correct mobile phone and email address in order to be able to receive the unique code. |
| Postconditions | The Consignee should execute then the process of proof of acceptance or not of the goods. |
| Scenario | **Initiation** <br><br> The truck arrives at the premises of the consignee and the drivers requests the unique code to be inserted in the system in order to be notified that this is the correct consignee and the proof of delivery process to be completed. |
| Alternative Scenario | **Fallback scenario** <br><br> If the consignee do not have the unique code then the administration of the IT solution should be addressed in case of system failure. The consignor should be able – since this is connected with the dispose of the goods therefore not the carrier- to check in the system again the contact details of the consignee, correct them if wrong and trigger a "send unique code to consignee event" in order for the system to send another unique code to consignee. |
| Special requirements | - |

## 10. Proof of acceptance or not of the goods

*Proof of acceptance or not of the Goods*



| Name | *Proof of acceptance r not of the goods use case* |
|---|---|
| Description | The consignee has the right to check the goods and accept them or not or even to declare a new consignee. Therefore, the consignee should enter in the system and either accept the delivery online finalizing the consignment note or making reservations / remarks / comments (also uploading photos / videos that justify those reservations. The carrier in that moment will have the opportunity to read those comments without being able to delete them but be able to provide replies if needed. |
| Actors | Consignor, Carrier, Consignee, |
| Performance Goals | Ensure that the consignee checks the goods and provides comments if needed. |
| Preconditions | The consignee should have first finalised the proof of delivery process. |
| Postconditions | Depending on the action of the consignee (no acceptance, acceptance, acceptance with reservations, new consignee) the carrier and the consignor should act accordingly. |
| Scenario | **Initiation**<br><br>The consignee checks the goods, the condition, packaging etc.. |
| Alternative Scenario | **Fallback scenario**<br><br>Depending which scenario will be selected then the Convention applies. |
| Special requirements | - |