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**Economic Commission for Europe****Inland Transport Committee****Working Party on Customs Questions affecting  
Transport****Group of Experts on Conceptual and  
Technical Aspects of Computerization of the TIR Procedure****Third session**

Geneva, 13–15 September 2021

Item 3 (c) of the provisional agenda

**eTIR international system****NCTS-eTIR Proof of Concept****NCTS-eTIR Proof of Concept****Transmitted by the European Commission****Mandate and background**

1. The Inland Transport Committee (ITC), at its eighty-second session (23–28 February 2020) approved (ECE/TRANS/294, para. 84<sup>1</sup>) the establishment of the Group of Experts on Conceptual and Technical Aspects of Computerization of the TIR Procedure (WP.30/GE.1) and endorsed its Terms of Reference (ToR)<sup>2</sup> (ECE/TRANS/WP30/2019/9 and ECE/TRANS/WP.30/2019/9/Corr.1), pending approval by the United Nations Economic Commission for Europe (ECE) Executive Committee (EXCOM). EXCOM during its remote informal meeting (20 May 2020) approved the establishment of WP.30/GE.1 until 2022, based on the ToR included in document ECE/TRANS/WP.30/2019/9 and Corr.1, as contained in document ECE/TRANS/294 (ECE/EX/2020/L.2, para. 5(b)).<sup>3</sup>

2. The European Commission transmitted the NCTS-eTIR Proof of Concept in Annex for consideration by WP.30/GE.1.

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<sup>1</sup> Decision of the Inland Transport Committee para. 84 / ECE/TRANS/294  
[www.unece.org/fileadmin/DAM/trans/doc/2020/itc/ECE-TRANS-294e.pdf](http://www.unece.org/fileadmin/DAM/trans/doc/2020/itc/ECE-TRANS-294e.pdf)

<sup>2</sup> Terms of reference of the newly established Group approved by the Inland Transport Committee and the Executive Committee (EXCOM) of ECE

<sup>3</sup> Decision of EXCOM, ECE/EX/2020/L.2 / para. 5(b)  
[www.unece.org/fileadmin/DAM/commission/EXCOM/Agenda/2020/Remote\\_informal\\_mtg\\_20\\_05\\_2020/Item\\_4\\_ECE\\_EX\\_2020\\_L.2\\_ITC\\_Sub\\_bodies\\_E.pdf](http://www.unece.org/fileadmin/DAM/commission/EXCOM/Agenda/2020/Remote_informal_mtg_20_05_2020/Item_4_ECE_EX_2020_L.2_ITC_Sub_bodies_E.pdf)

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## **I. Introduction**

### **A. Document purpose**

The purpose of this document is to analyse the compatibility of the NCTS and eTIR processes and information exchanges and to draw a conclusion on whether the interconnection between the two systems is possible. The interconnection should work in a way that no major changes to the systems would be necessary.

### **B. Target audience**

The target audience for this document includes:

- DG TAXUD
- UNECE
- EU<sup>1</sup> Member States
- Common Transit Convention contracting parties
- TIR Contracting parties

### **C. Scope**

The main scope of the document is the analysis of the main business processes in different scenarios. The Team that worked on the Proof of Concept examined the similarities and differences between the NCTS and eTIR processes and created business flows including the necessary information exchanges to depict how the two systems could work together. The Team also looked into the comparison of the NCTS declaration and the eTIR declaration data.

A data mapping of chosen information exchanges was performed, though, limited to certain messages.

It is also in the scope of this study to identify whether an interface between NCTS and the new eTIR international system is feasible and to be evaluated in terms of eTIR movements follow-up in the EU and CTC area, as well as the validation services related to TIR guarantees.

### **D. Legal basis**

Generality:

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<sup>1</sup> European Union

“TIR Convention” means the Customs Convention on the International Transport of Goods under cover of TIR carnets done at Geneva on 14 November 1975.

## 1. Current EU TIR related legal basis

General reminder:

- A person who lodges a customs declaration for transit shall not be required to be established in the customs territory of the Union.
- Before the goods are brought into the customs territory of the Union, an entry summary declaration shall be lodged, nevertheless this obligation may be waived if a customs declaration of transit is lodged in the correct time-limit and contains at least the particulars necessary for the entry summary declaration. This customs declaration shall have the status of an entry summary declaration.

General principles for TIR within the EU:

- for TIR transit, the customs territory of the Union shall be considered as a single territory.
- A "TIR transport" shall mean the transport of goods from a Customs office of departure to a Customs office of destination under the procedure, called the TIR procedure.
- A "TIR operation" shall mean the part of a TIR transport that is carried out in a Contracting Party from a Customs office of departure or entry (en route) to a Customs office of destination or exit (en route). In the Union, a “TIR operation”, also referred as TIR movement, means the movement of goods within the customs territory of the Union in accordance with the TIR Convention.

Functioning of the TIR regime within the Union:

Within the Union, in addition with the paper TIR Carnet, there is an IT exchange of TIR carnet data for the TIR operation and for the completion of the customs formalities of Union transit procedure in NCTS. In case of discrepancies between the particulars in the TIR carnet and the particulars in the electronic transit system, the TIR carnet shall prevail.

The MRN of a TIR operation, may be submitted to the customs authorities by one of the following means:

- A bar code;
- A transit accompanying document;
- A transit/security accompanying document;
- A TIR carnet;
- Other means as allowed by the receiving customs authority.

The TIR regime is, according to articles 226 and 227 of the Union Customs Code [R01], a suspensive transit regime which can be external or internal. The TIR movement should:

- Begin or end outside the customs territory of the Union;
- Or be affected between two points in the customs territory of the Union through the territory of a country or territory outside the customs territory of the Union.

In case of a TIR transport starting from the Union and involving an intermediate loading place, the TIR carnet holder is responsible for lodging the TIR carnet data and present the TIR carnet at the customs office of departure and at the intermediate loading place the previous TIR operation is terminated by sending the message IE006 and IE018 to the customs office of Departure in addition with detaching/retaining both parts of the TIR carnet Voucher No. 2 and annotating carnet counterfoil. Then the TIR carnet holder has to lodges TIR carnet data in the intermediate customs office, which become a customs office of departure, for starting a new TIR operation to a customs office of destination/exit.

At the customs office of departure or entry within the EU:

- The TIR carnet holder shall submit the TIR carnet data;
- The customs office shall record the MRN of the TIR operation in the TIR carnet;
- The customs office of departure shall release the goods and notify the TIR carnet holder of the release of the goods;
- At the request of the TIR carnet holder, the customs office of departure shall provide a transit accompanying document, or a transit/security accompanying document;
- The customs office of departure shall transmit the particulars of the TIR operation to the declared customs office of destination.

If an incident occurs during the movement of goods:

- The carrier shall present the goods and the vehicle, the TIR carnet and the MRN to the nearest customs authority of the MS in whose territory the means of transport is located;
- Those customs authorities will consider if the transport could continue or not. In any case, relevant information concerning the incident shall be recorded by the customs authority in the electronic transit system (until NCTC P5, the record is done by the office of destination or exit).

At the customs office of destination or exit:

- The goods together with the vehicle, the TIR carnet, the MRN of the TIR operation shall be presented at the customs office (except if it is an authorised consignee, see below);
- The diversion is possible: a TIR operation may be terminated at a customs office other than that declared in the transit declaration, that customs office shall then be considered to be the customs office of destination or exit.

The customs office of destination shall:

- Notify the customs office of departure or entry of the arrival of the goods;
- Notify the control results to the customs office of departure or entry at the latest on the third day following the day the goods are presented at the customs office of destination or exit (in the case of an authorised consignee it is at the latest on the sixth day following the day the goods were delivered to the authorised consignee);
- Terminate the TIR operation in accordance with the TIR Convention provisions.

In addition to the TIR Convention, there is the existence in the EU law of the possibility for a trader to be an Authorised consignee for TIR purposes. This authorised consignee should receive goods moved in accordance with the TIR Convention at an authorised place, so that the procedure is terminated in accordance with point d) of Article 1 of the TIR Convention.

When the goods arrive at the place specified in its authorisation, the authorised consignee shall:

- Notify the customs office of destination about the arrival of goods and inform of any irregularities/incidents that occurred during the transport;
- Unload the goods only after having obtained the permission from the customs office of destination;
- Enter the results of inspection and inform about any irregularities at the latest on the third day following the day on which he has received the permission to unload the goods.

Additional information for EU use of future eTIR data:

The current TIR carnet could also constitute a Proof of the customs status of Union goods (cf. Article 127 DA) when the code T2L or T2LF is used and additional authentication such as the stamp and the signature of the competent official (cf. Article 207 IA).

## 2. Possible futures changes in the EU legislation

The new Annex 11 [R17] of the TIR Convention, as well with the EU IT connection choice to the eTIR International System might have an impact on several articles in the EU legal framework such as article 184 DA [R02], annex A of DA, Article 207, 273 to 282 IA [R03] and Annex A of IA. These legal changes will depend on the way EU choose to connect to the eTIR international system.

## 3. The TIR Convention legal base related to eTIR

A TIR transport, using either the TIR or the eTIR procedure, is governed by the provisions of the TIR Convention.

However, on 25 May 2021, new provisions entered into force and provide additional provisions specific to the eTIR procedure:

Article 1, new paragraph (s)

The new paragraph (s) to Article 1 to the TIR Convention was elaborated to give a definition of the “eTIR procedure” which is a TIR procedure, implemented by means of electronic exchange of data, which provides the functional equivalent to the TIR Carnet. This Article also stipulates that the “eTIR procedure” is legally defined in the new Annex 11 of the TIR Convention.

Article 3 b)

The amendment of paragraph b) to Article 3 to the TIR Convention is needed to specify that the TIR transport carried out by the eTIR procedure must be guaranteed by authorized association.

Article 43, first line

The amendment to Article 43 to the TIR Convention aims to take into account the new Explanatory notes in Annex 11, Part II, which provide clarifications about the application of certain provisions of Annex 11. This amendment can be considered as of an editorial nature.

New Article 58 quarter

The new Article 58 quarter to the TIR Convention was elaborated to establish the Technical Implementation Body. This body will be in charge of the adoption and amendment of the technical eTIR specifications in line with the conceptual and functional specifications adopted by the Administrative Committee.

Article 59, paragraph 2, first line and new Article 60 bis

The amendment to Article 59, a new Article 60 bis and an amendment of Article 61 to the TIR Convention contains the procedure for the entry into force of Annex 11 and future amendments. Annex 11 entered into force with respect to all Contracting Parties except for those that notified their non-acceptance to the Secretary-General of the United Nations (i.e. Switzerland). Consequently, all Contracting Parties to the TIR Convention, with the exception of Switzerland, are bound by the new Annex 11.

Annex 9, Part I, paragraph 3, new subparagraph (xi)

The new subparagraph (xi) to paragraph 3 of Part I of Annex 9 creates a new duty for authorized associations in case of a fallback situation during an eTIR procedure. Upon request of the competent authorities, associations will have to confirm that the transport is carried out under the eTIR procedure, that the guaranty is valid and provide any other relevant information related to the TIR transport.

### New Annex 11

Annex 11 is composed of fourteen Articles which describe the key aspects of the eTIR procedure, as well as Explanatory notes that clarify the application of certain articles.

Article 1 underlines that provisions of this Annex should only apply to Contracting Parties bound by Annex 11 as provided in the new Article 60 bis paragraph 1 of the TIR Convention and that the eTIR procedure cannot be used for TIR transports taking place in part in the

territory of a Contracting Party that is not bound by Annex 11 and is a member State of a customs or economic union with a single customs territory.

Article 2 provides for the necessary definitions in order to correctly describe the new eTIR system. In this article, the definitions of the following terms are provided: “eTIR international system”, “eTIR specifications”, “advance TIR data”, “advance amendment data”, “declaration data”, “declaration”, “accompanying document” and “authentication”.

The Explanatory Notes to Article 2, paragraph (h) underlines that until a harmonized approach has been established and described in the eTIR specifications, Contracting Parties will have a certain flexibility to authenticate the holder of the eTIR procedure in line with their national law. They also state that the security of data exchanged between the eTIR international system and the competent authorities will be ensured as defined in the eTIR technical specifications.

Article 3 deals with the concrete implementation of the eTIR system which requires that Contracting Parties connect their IT systems to the eTIR international system. However, this article, in line with the formulation proposed by the Union, gives to the Contracting Parties bound by Annex 11 the flexibility to establish by which date their customs systems would be connected to the eTIR international system.

The Explanatory Note to Article 3, paragraph 2 recommends to the Contracting Parties bound by Annex 11 to have their national customs systems updated and their connections with the eTIR international system ensured as soon as Annex 11 enters into force. However, in line with the request made by the Union, it leaves to customs or economic unions the flexibility to decide on a later date, allowing them time to connect the national customs systems of all their member States to the eTIR international system.

Article 4 establishes the composition, functions and provisions for the rules of procedure of the new Technical Implementation Body established by the new Article 58 quater of the TIR Convention. It is important to underline that only the Contracting Parties bound by Annex 11 will be members of this body. Contracting Parties which have not accepted Annex 11 may only attend sessions of the Technical Implementation Body as observers.

Article 5 explains how the new Technical Implementation Body will prepare for the adoption and amendment of the conceptual and functional specifications of the eTIR international system by the Administrative Committee. This article also specifies how the Technical Implementation Body prepares and adopts or amends the technical specification of the eTIR procedure in line with the conceptual and functional specifications.

Article 6 describes the submission of advance TIR data. This data will be submitted by operators in advance by electronic means. The competent authorities will have to publish the list of all electronic means by which advance TIR data and advance amendment data can be submitted. This article should be read in connection with Article 9 of Annex 11 which describes how additional data requirements, imposed by legislation, could be added to the advance TIR data. This article furthermore stipulates that Contracting Parties should facilitate the submission of such additional data together with advance TIR data.

The Explanatory Note to Article 6, paragraph 3 recommends to the Contracting Party bound by Annex 11 to recognize the methods indicated in the eTIR specifications to submit advance TIR data.

Article 7 defines the necessary mechanisms to authenticate the holder, or its representative, who submits advance TIR data to the competent authorities. It is important to underline that Contracting Parties bound by Annex 11 will have to accept the declaration data received from the competent authorities of the country of departure, and forwarded by the eTIR international system, and also in the case of an amendment to the declaration data received from any competent authorities along the itinerary, once again forwarded by the eTIR international system.

The Explanatory Note to Article 7, paragraph 2 ensures that the eTIR international system is able to confirm the integrity of the advance TIR data or advance amendment sent by the holder, when it is via the eTIR international system.

The Explanatory Note to Article 7, paragraph 4 ensures that the eTIR international system is able to confirm the integrity of the declaration data sent by the competent authorities.

Article 8 recalls a fundamental principal to the TIR Convention which is the mutual recognition of the authentication of the holder performed by the competent authorities of the Contracting Parties bound by Annex 11.

The Explanatory Note to Article 8 ensures that the eTIR international system is able to confirm the integrity of the declaration data, including the reference to the holder, received from the competent authorities that accepted the declaration.

Article 10 introduces a fallback procedure in the event that a TIR transport performed under the eTIR procedure is impeded for technical reasons and recalls the duties of national guaranteeing associations in that situation.

Article 11 and Article 12 describe how the eTIR international system will be hosted, financed and administrated. Since the beginning of the discussion on this issue, the Union has been in favour of the proposed solution of having an eTIR system hosted and administrated directly under the auspices of the United Nations Economic Commission for Europe so as to ensure the independence of the eTIR International system from the international organisation (currently the IRU).

The Explanatory Note to Article 11, paragraph 3 clarifies the rules to finance the operational costs of the eTIR international system in case the costs are to be covered through an amount per TIR transport. In this case, the Contracting Parties have the responsibility to decide on the appropriate financing mechanisms and on their modalities. The budget will be approved by the Administrative Committee.

Article 13 establishes the rules concerning the publication of the customs offices capable of handling eTIR operations. The competent authorities shall ensure that the list of customs offices for accomplishing TIR operations under the eTIR procedure is accurate and updated in the electronic database for approved customs offices developed and maintained by the TIR Executive Board.

Article 14 specifies that data submission to end TIR operations is deemed to be fulfilled by the application of the eTIR procedure.

## E. Reference documents

Table 1  
Reference documents

<i>Ref.</i>	<i>Title</i>	<i>Originator</i>	<i>Version</i>	<i>Date</i>
R01	Regulation (EU) No. 952/2013 of the European Parliament and of the Council of 9 October 2013 laying down the Union Customs Code	European Parliament and European Council	01/01/2020	09/10/2013
R02	Commission delegated regulation (EU) 2015/2446 of 28 July 2015 supplementing Regulation (EU) No 952/2013 of the European Parliament and of the Council as regards detailed rules concerning certain provisions of the Union Customs Code	European Commission	15/03/2021	28/07/2015
R03	Commission implementing regulation (EU) 2015/2447 of 24 November 2015 laying down detailed rules for implementing certain provisions of Regulation (EU) No 952/2013 of the European Parliament and of the Council laying down the Union Customs Code	European Commission	15/03/2021	24/11/2015
R04	EU Customs Functional Requirements BPM Report and its Annexes	European Commission	7.00	2021



<i>Ref.</i>	<i>Title</i>	<i>Originator</i>	<i>Version</i>	<i>Date</i>
R05	Design Document for National Transit Applications	European Commission	5.13/5.14	2020/2021
R06	Design Document for Common Operations and Methods	European Commission	20.10	12/06/2020
R07	Functional System Specifications (FSS UCC NCTS-P5)	European Commission	5.10	2021
R08	Architecture Overview for NCTS-P5	European Commission	1.15	2021
R09	Electronic Customs Multi-Annual Strategic Plan (MASP-C revision 2019)	European Commission	1.1	2019
R10	Introduction to the eTIR conceptual, functional and technical documentation	UNECE	4.2a	2017
R11	eTIR Concepts	UNECE	4.2a	2017
R12	eTIR Functional specifications	UNECE	4.2a	2017
R13	Approved amendments to the eTIR conceptual, functional and technical documentation	UNECE	4.2a	2017
R14	TIR Convention	United Nations		1975
R15	eTIR Technical Specifications	UNECE	4.3	2021
R16	TIR Handbook	UNECE	11	2018
R17	Annex 11 of the TIR Convention	United Nations		2020

Note that all the documents listed above are input to this document. Any change in any of the documents above is likely to have direct and immediate consequences for this document.

## F. Abbreviations & acronyms

For a better understanding of the present document, the following table provides a list of the principal abbreviations and acronyms used.

Table 2  
Abbreviations and acronyms

<i>Abbreviation/Acronym</i>	<i>Definition</i>
AAR	Anticipated Arrival Record
AEO	Authorised Economic Operator
AES	Automated Export System
ATD	Advanced TIR Data
BC	Business Case
BG	Bulgaria
BPM	Business Process Model
BY	Belarus
CCN	Common Communication Network

<i>Abbreviation/Acronym</i>	<i>Definition</i>
CDMS	Customs Decision Management System
CH	Switzerland
CN	Combined Nomenclature
COM	European Commission
CRS	Computerised Reservation Systems
CS/ieCA	Central / Information Exchange Convertor Application
CS/MIS	Central Services Management Information System
CS/RD2	Central Services Reference Data
CT	Conformance Testing
CTA	Conformance Testing Application
CTC	Common Transit Convention
DA	Delegated Act
DD	Declaration Data
DDNA	Design Document for National Applications
DDNTA	Design Document for National Transit Applications
DDCOM	Design Document for Common Operations and Methods
DE	Germany
DG TAXUD	Directorate General Taxation and Customs Union
EBTI	European Binding Tariff Information
ECICS	European Customs Inventory of Chemical Substances
ENS	Entry Summary Declaration
EO	Economic Operator
EORI	Economic Operators Registration and Identification number
EOS	Economic Operator Systems
EU	European Union
EUCDM	European Union Customs Data Model
EXS	Exit Summary Declaration
FSS UCC NCTS-P5	Functional System Specifications UCC NCTS Phase 5 (SfA)
GR	Greece
HU	Hungary
IA	Implementing Act
ICS2	Import Control System
ICT	Information Communication Technology
ieCA	Information Exchange Convertor Application

<i>Abbreviation/Acronym</i>	<i>Definition</i>
IR	Iran
IRU	International Road Transport Union
IT	Information Technology
ITDB	International TIR Data Bank
LRN	Local Reference Number
LT	Lithuania
MASP-C	Multi-Annual Strategic Plan for electronic Customs
ME	Montenegro
MRN	Master Reference Number
MS	Member State (of the EU)
NA	National Administration
NCA	National Customs Application
NCTS	New Computerized Transit System
NCTS-P5 L4 BPMs	EU Customs Functional Requirements BPM Report for New Computerised Transit System (NCTS)
N/ieCA	National / Information Exchange Converter Application
NL	Netherlands
NTA	National Transit Application
OLAF	Office Européen de Lutte Anti-fraude / European Anti-fraud Office
OoDep	Office of Departure
OoDest	Office of Destination
OoEntry	Office of Entry
OoExit	Office of Exit
PoC	Proof of Concept
PL	Poland
REX	Registered Exporter System
RO	Romania
RS	Serbia
RU	Russia
SLA	Service Level Agreement
SPEED2	Single Portal for Entry or Exit of Data
T2L/T2LF	Main codes to indicate the customs status of Union goods
TAD	Transit Accompanying Document
TARIC	Integrated Tariff of the European Union
TCUIN	Third Country Unique Identification Number

<i>Abbreviation/Acronym</i>	<i>Definition</i>
TES	Trans-European System
TIB	Technical Implementation Body
TIR	Transit International Routier
TIR-EDI	TIR Electronic Data Interchange
TIR-EPD	TIR Electronic Pre-Declaration (portal)
TR	Turkey
TSS	Transit System Specifications
UCC	Union Customs Code
UCC/DA	Union Customs Code Delegated Regulation
UCC/IA	Union Customs Code Implementing Regulation
UNECE	United Nations Economic Commission for Europe
WCO	World Customs Organisation
WCODM	World Customs Organisation Data Model

## G. Definitions

For a better understanding of the present document, the following table provides a list of the principal terms used.

Table 3  
Definitions

<i>Term</i>	<i>Definition</i>
Customs Administration	Customs Administration of a country participating in NCTS or bound by Annex 11 of the TIR Conventions.
Trader	Generic term for the Economic Operators who interact with the Transit procedures.
Customs Office of Departure (NCTS)	The Customs Office where the customs declaration placing goods under a transit procedure is lodged.
Customs Office of Destination (NCTS)	The Customs Office where the goods placed under a transit procedure are to be presented in order to end the procedure.
Customs Office of Departure (TIR)	Any Customs office of a Contracting Party where the TIR transport of a load or part load of goods begins
Customs Office of Destination (TIR)	Any Customs office of a Contracting Party where the TIR transport of a load or part load of goods ends
Customs office of entry (TIR)	Any customs office of a contracting party through which a road vehicle, combination of vehicles or container enters this contracting party in the course of a TIR transport.
Customs office of exit (TIR)	Any customs office of a contracting party through which a road vehicle, combination of vehicles or container leaves this contracting party in the course of a TIR transport.
Customs Officer	A customs officer is a law enforcement agent who enforces customs laws, on behalf of a National Administration. The Customs Officer supervises goods traffic

<i>Term</i>	<i>Definition</i>
	in ports, airports, and land border crossings, and within the territory of the National Administration.
Holder of The Transit Procedure	The person who lodges the Transit declaration, or on whose behalf that declaration is lodged or the person to whom the rights and obligations in respect of a customs procedure have been transferred. The Holder of the Transit Procedure is considered the proprietor of the transit movement.
TIR Carnet holder	The person to whom a TIR Carnet has been issued in accordance with the relevant provisions of the Convention and on whose behalf a Customs declaration has been made in the form of a TIR Carnet indicating a wish to place goods under the TIR procedure at the Customs office of departure. He shall be responsible for presentation of the road vehicle, the combination of vehicles or the container together with the load and the TIR Carnet relating thereto at the Customs office of departure, the Customs office en route and the Customs office of destination and for due observance of the other relevant provisions of the Convention (TIR Convention, Article 1 (o)).
eTIR international system	The term “eTIR international system” shall mean the Information and Communication Technology (ICT) system devised to enable the exchange of electronic information between the actors involved in the eTIR procedure. (TIR Convention, Annex 11, Article 2).
eTIR specifications	The term “eTIR specifications” shall mean the conceptual, functional and technical specifications of the eTIR procedure adopted and amended in accordance with the provisions of Article 5 of this Annex. (TIR Convention, Annex 11, Article 2).
Advance TIR data	The term "advance TIR data" shall mean the data submitted to the competent authorities of the country of departure, in accordance with the eTIR specifications, of the intention of the holder to place goods under the eTIR procedure. (TIR Convention, Annex 11, Article 2).
Advance amendment data	The term "advance amendment data" shall mean the data submitted to the competent authorities of the country in which an amendment to the declaration data is requested, in accordance with the eTIR specifications, of the intention of the holder to amend the declaration data. (TIR Convention, Annex 11, Article 2).
Declaration data (eTIR)	The term “declaration data” shall mean the advance TIR data and the advance amendment data which have been accepted by the competent authorities. (TIR Convention, Annex 11, Article 2).
Declaration (eTIR)	The term “declaration” shall mean the act whereby the holder, or his or her representative, indicates, in accordance with the eTIR specifications, the intent to place goods under the eTIR procedure. From the moment of acceptance of the declaration by the competent authorities, based on the advance TIR data or the advance amendment data, and the transfer of the declaration data to the eTIR international system it shall constitute the legal equivalent of an accepted TIR Carnet. (TIR Convention, Annex 11, Article 2).
Accompanying document (or eTIR accompanying document)	The term “accompanying document” shall mean the printed document electronically generated by the customs system, after the acceptance of the declaration, in line with the guidelines contained in the eTIR technical specifications. The accompanying document can be used to record incidents en route and replaces the certified report pursuant to Article 25 of this Convention and for the fallback procedure. (TIR Convention, Annex 11, Article 2).
Transit Accompanying Document (TAD-NCTS)	Upon request of the holder of the transit procedure, the information of the NCTS declaration (after release into transit) can be printed out to accompany the movement.

<i>Term</i>	<i>Definition</i>
Authentication (eTIR)	The term “authentication” shall mean an electronic process that enables the electronic identification of a natural or legal person, or the origin and integrity of data in electronic form to be confirmed. (TIR Convention, Annex 11, Article 2).

## II. Problem statement

Nowadays, TIR transports entering into the EU territory are followed in parallel within NCTS. The declaration data contained in the TIR Carnet are copied into the transit system and a NCTS declaration is lodged. To ensure this practice once the EU implements the eTIR procedure, NCTS and the eTIR international system should be able to exchange the relevant information. As Contracting Parties to the TIR convention might connect at different dates and there is no obligation for holders to use the eTIR procedure instead of the TIR procedure, even when the former is available on an intended route, the current NCTS for TIR (paper carnet) and the new NCTS for eTIR (eTIR exchange of data) will coexist.

DG TAXUD of COM prepared a Business Case document in 2020 for point 3.1 of the MASP-C revision 2019 [R09] “EU Implementation of UNECE eTIR System”, in which the proposed solution is to interconnect the eTIR international system with NCTS.

During the external review of the BC, the EU MSs were on the opinion that further information is needed about the possible interconnection to make a well-established decision. DG TAXUD proposed to set the Business Case approval on a “hold” status and to further analyse the connection dynamics between the two systems by means of this Proof of Concept. Based on the result of the PoC, DG TAXUD will continue with the eTIR BC and the implementation of eTIR.

## III. Environment description

### A. New Computerized Transit System (NCTS)

The NCTS is the system to process transit declarations and follow the transit of goods. The system is used for Union transit between EU Member states and common transit between Common Transit Convention contracting parties. It establishes information exchange between National Authorities through the Common Communication Network (CCN). Currently, NCTS Phase 4 is operating in 27 EU Member States and the Common Transit Convention contracting countries. Germany has deployed the Phase 5 national application in March 2021. By the end of 2023, all NCTS users will upgrade to the NCTS Phase 5 version of the system, which includes several improvements to its functionalities.

#### 1. NCTS Architecture

NCTS-P5 architecture is based on the subsidiarity principle as all existing distributed Trans-European Systems (TES). Each National Administration is responsible for the correct and timely design, implementation and operations of the respective National Customs Application (NCA) of TES within the framework of common TES specifications and Service Level Agreements (SLA). At central level,

- data for operational monitoring and statistical evaluation is collected, processed and stored using the CS/MIS application;
- common reference data is maintained using the CS/RD2 application;
- customs customers data is maintained by various systems (e.g. EOS, CDMS, REX) and made available via the CRS application;
- TARIFF related data is made available via various central systems (CN, ECICS, TARIIC, EBTI).

In addition, a common test environment and the CTA application, is made available to the Member States and CTC countries to perform and evaluate Conformance Tests against their applications. The common test environment for NCTS-P5 includes the Information Exchange Converter Application (ieCA).

NCTS-P5 will be implemented using a “progressive start of operations” approach during a transitional period (2021-2023). The selected transition approach allows NAs to adapt their developments according to their resources, technical constraints and traders’ constraints.

During the transition period, NCTS-5 NTA application is responsible for exchanging messages with the NAs remaining in the old phase using the specifications of that phase. For the required conversions NAs may use:

- The centrally developed and centrally operated ieCA (CS/ieCA);
- Deploy the centrally developed ieCA and operate it at their premises (N/ieCA);
- Implement and use their own solution as far as their implementation complies with the common TSS.

EU Customs TES architecture guarantees the reduction of integration risks (including security risks) and costs by ensuring the consistency and integrity of the whole via specifying clearly all interfaces and other expectations on every constituent part of the whole. The constituent parts, the components of the architecture, are identified at the highest meaningful level strongly set by border of responsibility between the parties involved.

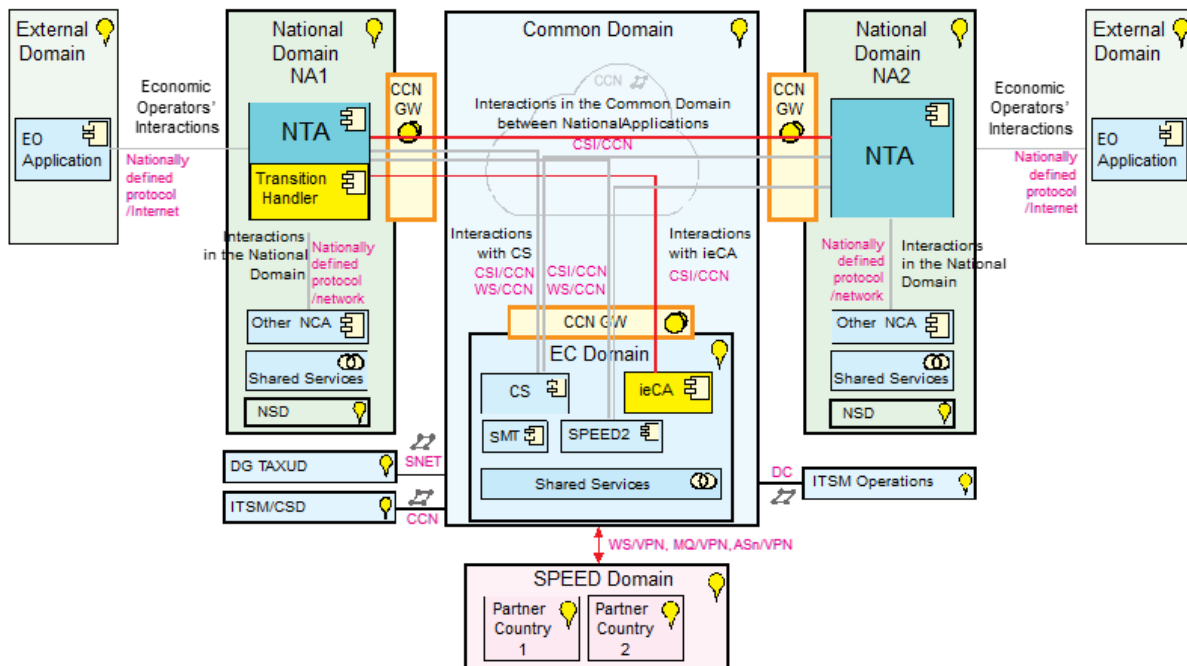
TES security requirements and their implementation are based on the TES security domains: Common Domain, National Domain, External Domain and Partner Countries Domain (known as SPEED2 domain). The security responsibilities are:

- The security of the Common Domain is under the responsibility of DG TAXUD;
- Every National Administration is responsible for the security of its National Domain, its connection to the Common and External Domains and for any National connections between linked Trans-European systems (e.g. Transit-AES); Measures should be taken by NAs to ensure the Confidentiality, Integrity and Availability of any information exchange between Economic Operators and National Administrations whatever the means of communications.

Further details on the NCTS-P5 Architecture, can be found in the “Architecture Overview for NCTS-P5” document [R08].

The below picture represents the overview of the NCTS-P5 architecture:

Figure I  
NCTS-P5 Architecture Overview<sup>2</sup>



## 2. NCTS specifications

The NCTS common specifications are defined by DG TAXUD together with the EU MS and CTC Contracting parties.

### (a) Functional specifications

The Functional specifications consist of the EU Customs Functional Requirements BPM Report and its annexes [R04]: Business Process Model Graphics, Glossary, Business Requirements and List of Amendments. For the time being DG TAXUD maintains the Functional Transit System Specifications documents (Section I – Business process threads for core business and Section II – Business process threads for guarantee management) [R07].

The Functional specifications are published on the European Commission's CIRCABC platform. This Proof of Concept is based on the NCTS Phase 5 Functional specifications, which can be found in [this CIRCABC folder](#).

### (b) Technical specifications

The Technical Specifications, namely the Design Document for National Transit Applications (DDNTA) [R05] for NCTS, consists of the Main Document and its appendices. The purpose of the DDNTA is to state unambiguously what needs to be developed and to define how the Information Exchanges have to be performed and transported between the National Transit Applications. On top of the DDNTA, the Design Document for National Applications (DDNA) specifies the design requirements to which any Customs Movement Application needs to conform. The DDNA consists of six volumes in total, out of which two are for Transit (NCTS-P4 and NCTS-P5) and one volume is for all systems defining the common operations and methods (DDCOM) [R06].

These documents can be found in CIRCABC under the Group of Interest <[e-Customs / IT aspects](#)>.

<sup>2</sup> In national domain NA1, the transition handler will not be needed after the transition period when all member states are in Phase 5.



### 3. NCTS-P5 current processes

Overview of the main NCTS core process:

The movement is initiated. Thereafter, the Holder of the Transit Procedure receives the NCTS Accompanying Document or MRN of Transit Declaration in an electronically readable format. In normal procedure, as per Article 41 of Appendix 1 of CTC, in case of CTC country, Customs Office of Departure has to provide printout of TAD to the Declarant. The vehicle with the consignment goes to the first Customs Office of Transit (if any).

Normally, when the consignment arrives at destination, the goods are presented to the Customs Office of Destination which processes the arrival notification of the movement (usually sent by the Consignee). Once the arrival processing is complete, the Customs Office of Departure writes-off the movement after the reception of the destination control results.

The major process threads in NCTS are:

- Process Departure;
- Process Arrival;
- Process Incidents En-Route;
- Process Movement at Customs Office of Transit;
- Process Formalities at Customs Office of Exit for Transit;
- Handle Enquiry;
- Handle Recovery.

For further details on the current processes of NCTS see Annex II of document ECE/TRANS/WP.30/GE.1/2021/41.

## B. eTIR international system

The work on the eTIR project started within the TIR bodies in UNECE in 2003. An expert group was set up to define the conceptual and technical aspects of the computerisation. COM (TAXUD-A3) and many Member States were involved in drafting the eTIR Reference Model in order to have the philosophy and many technical elements as close as possible to EU systems (NCTS). One might expect that therefore EU systems can work or be interlinked with a minimal effort. Considerable input to the eTIR Reference Model was given by Mr. Greven (NL) who is also an expert on the WCO data model on which the eTIR data model is based and fully aligned. Currently, the eTIR specifications are being finalized in their version 4.3, and the legal basis (new Annex 11) has entered into force in May 2021.

### 1. eTIR Roadmap

Table 4  
eTIR Roadmap

	<i>Milestone</i>	<i>Estimated completion date</i>
1	<b>Preparation of eTIR Specifications v4.3<sup>a</sup></b>	
	Introduction document	20/01/2021
	Concepts document	20/01/2021
	Functional specifications document	25/05/2021
	Technical specifications document	12/09/2021
2	<b>Adoption of the eTIR Specifications v4.3<sup>b</sup></b>	
	Introduction document	14/10/2021

<i>Milestone</i>	<i>Estimated completion date</i>
Concepts document	14/10/2021
Functional specifications document	14/10/2021
Technical specifications document	14/10/2021
<b>3 Legal Provision</b>	
Annex 11 of the TIR Convention comes into force	25/05/2021
<b>4 Main IT Project</b>	
<b>Initial Construction Phase</b>	
eTIR international system	01/05/2021
Integration with the Guarantee Chain	01/05/2021
<b>Transition Phase</b>	
Adaptation to the latest amendments approved for the specifications v4.3	30/10/2021
Conformance tests	01/11/2021
Deploy and rollout	01/11/2021
<b>5 Interconnection Projects with Customs Administrations <sup>c</sup></b>	
It should be noted that several interconnection projects have been already initiated with several countries since 2020. The secretariat has already developed, pending some last modifications and tests, the eTIR International System based on the 4.3 specs, fully aligned with the provisions of Annex 11. The below plan is completely theoretical, and the implementation time frame depends on many factors such as the readiness of the national customs system, the resources available, etc.	
Project Initiation stage	X
Design stage	X + 4 months
Implementation stage	X + 8 months
Conformance Tests stage	X + 10 months
Deploy, Training and Rollout	X + 14 months

<sup>a</sup> The “Estimated completion date” for the preparation of the eTIR Specifications should be understood as the possible first presentation of these documents in version v4.3 to the Group of Experts on Conceptual and Technical Aspects of Computerization of the TIR Procedure (WP.30/GE.1) for consideration.

<sup>b</sup> The WP.30/GE.1 is a formal group of experts mandated to prepare the eTIR specifications v4.3 and deliver it to its parent body (the WP.30) at the end of its mandate (15/09/2021). The WP.30 should then adopt this version 4.3 of the eTIR specifications while waiting for the Technical Implementation Body (TIB) to be established.

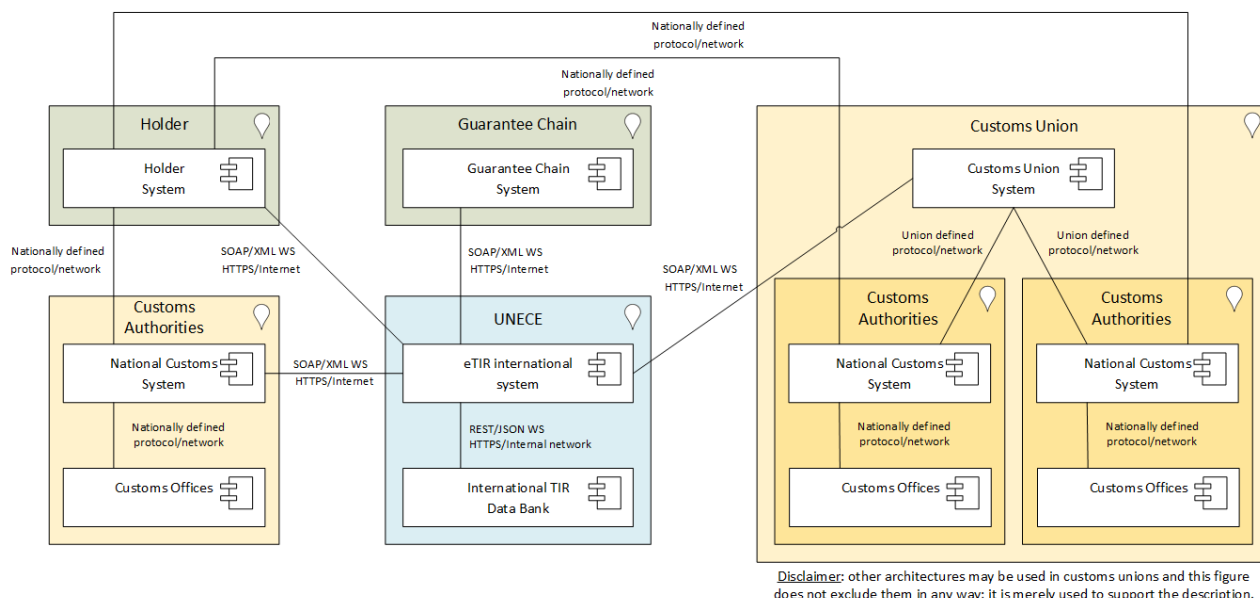
<sup>c</sup> Each contracting party (not opting out Annex 11) will have to select a date from which it would start an interconnection project to connect its national customs system to the eTIR international system. Contracting parties which are member States of a customs or economic union may have the possibility to connect to the eTIR international system through information systems put in place by this customs or economic union. The “Estimated completion date” mentioned for this section are extracted from the Project Guidelines and indicated as tentative durations only.

## 2. eTIR Architecture

The eTIR international system aims at ensuring the secure exchange of data between national customs systems related to the international transit of goods, vehicles or containers according

to the provisions of the TIR Convention and to allow customs to manage data on guarantees, issued by guarantee chains to TIR Carnet holders authorized to use the TIR system. The eTIR international system also acts as a central database that stores all information exchanged between the actors through it. Using a query mechanism, actors can therefore retrieve information about guarantees, TIR operations and holders related to TIR transports (provided they are allowed to access it).

Figure II  
eTIR Architecture diagram



The figure above shows the interactions between the main actors of the TIR Convention in the context of the eTIR procedure. The guarantee chain starts by issuing an electronic guarantee to a holder (outside of the eTIR system) and registers it with the eTIR international system. The holder sends the advance TIR data to customs or directly to the eTIR international system which will then forward it to customs. Upon presentation of the vehicle at the customs office of departure, its loading is checked against the advance TIR data previously sent, and customs send the approved declaration data to the eTIR international system and notify the start of a TIR operation. When the TIR transport reaches the customs office of exit, customs notify the termination and, possibly at a later stage, the discharge of the TIR operation to the eTIR international system. The same occurs for all subsequent TIR operations in the countries en route and of destination. The guarantee chain and the customs authorities participating in the TIR transport are notified by the eTIR international system on specific events so they can follow the transport and query information on the guarantee to populate their information systems. Finally, necessary checks are continuously performed by the eTIR international system against the International TIR DataBank (ITDB) with regard to holder and customs office data.

### 3. eTIR Specifications

The eTIR specifications is composed of the following four parts:

- The Introduction [R10]: this document gives background information on the eTIR project by listing the decisions taken by the group of experts on conceptual and technical aspects of computerization of the TIR procedure. It also describes the business domain modelling by detailing the business requirements and the use cases of the TIR procedure that were included in the scope of the eTIR project.
- The eTIR concepts [R11]: this document gives the high-level description of the eTIR project, listing the actors and roles, the fundamental principles and deliverables. It also describes the use cases, the class diagrams and the declaration mechanisms.

- The eTIR functional specifications [R12]: this document translates the eTIR concepts into specifications that enable software developers and message designers to further design the eTIR system. It describes the sequence diagrams of the processes, the fallback mechanisms and provides the structure and format of the messages that can be exchanged between actors. It also details the code lists used in these messages.
- The eTIR technical specifications [R15]: this document describes the guiding principles, architecture, technical requirements development and maintenance processes of the eTIR international system. It details the security aspects of the eTIR system and on technical fallback procedures. It also describes the following aspects of the communication between the eTIR international system and the eTIR stakeholders: technical requirements, access to the eTIR web services, implementation and test aspects of the eTIR messages and the list of technical details of all eTIR messages.

#### 4. eTIR processes

eTIR processes are separated in two main categories, those related to the management by customs of data on guarantees and those related to customs to customs data exchange. The processes involving the usage of eTIR messages are listed below:

Management by customs of data on guarantees:

- Register guarantee
- Cancel guarantee
- Accept guarantee
- Get holder information
- Query guarantee

Data exchange:

- Record declaration data
- Starting of TIR operation
- Terminate TIR operation
- Discharge TIR operation
- Notify guarantee chain
- Notify subsequent Countries
- Advance data
- Refusal to start TIR operation
- Accident or incident

For further details on the eTIR processes see Annex III of document ECE/TRANS/WP.30/GE.1/2021/41.

## IV. Approach followed

### A. Main Assumptions

To enable the proper communication between the eTIR system and NCTS, the permanent usage of a convertor is foreseen. The convertor facilitates the information exchange by providing the conversion of the technical specification between the two systems.

The approach of using a convertor would ease the work of the member States as they would not be required to update their national customs systems to directly connect with the eTIR international system as NCTS would act as a proxy between them. This harmonized approach

could also benefit the CTC countries which be interested to connect to the eTIR international system through NCTS instead of having to connect to it themselves.

The aim of this PoC is to analyse the full automation of the procedure as in the eTIR specifications and any other alternative should be in the scope of later activities.

In the context of TIR procedures carried out in the EU, the customs territory of the Union is considered as a single territory. Therefore, for the purpose of this exercise, the harmonised approach of all the EU MS implementing the eTIR in NCTS is assumed. Some of the CTC countries might also be interested to adopt the same approach.

Having a harmonised approach allows better communication between the National Administrations as well as the communications between the customs authorities and the Economic Operators.

## **B. Organisation**

The following participants actively contributed to the elaboration of the Proof of Concept for the whole duration of the activities:

- European Commission, DG TAXUD, Units:
  - A1 - Customs Policy;
  - B1 - Processes and data, customer relationship and planning;
  - B3 - Customs systems.
- UNECE, members of the TIR secretariat:
  - eTIR interconnection projects focal point
  - eTIR international system development coordinator
  - ITDB project manager
- CUSTDEV 3 (External contractors)
- EU Member States:
  - Belgium
  - Denmark
  - Germany

The activities started from mid-2020 with a couple of kick-off meetings before the summer break, in order to define the approach to be followed. As from September 2020, meetings were organised on a regular basis (weekly or bi-weekly) depending on the availabilities of all the participants. Between the meetings the team worked on the processes, data analysis and on the documentation.

## **C. Study Tools**

The following tools were used:

- Microsoft Teams for collaborative work and for regular video conferences,
- Microsoft Word for documents,
- Microsoft Excel for the data comparison tables,
- Visio for business process diagrams.

## **D. Process**

For the assessment of the possibility to interconnect NCTS and eTIR, several Business Processes were created. The processes establish the connection points between the systems,

allowing to understand how the relevant movement information is exchanged. Initially, brainstorming activities took place, to define the scope of the creation of visual business processes. Once the scope was established, the drafting of the processes started.

A set of Main Business Processes was created and further elaborated into sub-processes (Annex 1 to this document). They have been selected to cover the largest selection of business scenarios.

Several sub-scenarios were also explored (see Annex I of document ECE/TRANS/WP.30/GE.1/2021/41), for example in case of customs control and discrepancies were found, rejection of the transit declaration, incidents during the journey. This exercise allowed the group to familiarise with both procedures (NCTS and eTIR) and the combination of the two, as well as to better define how the processes could be linked together and to communicate the information needed.

Each process was created locally and then discussed and validated within the group, taking into consideration the needs of the different stakeholders.

## **E. Data Analysis**

In terms of this study, the mapping between the declaration messages (called advance TIR data or advance amendment data in the eTIR procedure) of the two domains is based on which system is initially used to submit the declaration. A TIR transport can be initiated either in EU (in NCTS) or outside EU (in any other TIR Contracting Party bound by Annex 11).

In terms of data analysis, the data included in the following specific NCTS P5 and eTIR messages were compared:

- I15 – Notify Customs vs IE015-DECLARATION DATA E\_DEC\_DAT, when the movement has been initiated in the eTIR international system;
- I7 – Record advanced cargo Information vs IE029 -RELEASE FOR TRANSIT E\_REL\_TRA, when the movement has been initiated in NCTS;
- I9 – Start TIR operation vs IE029 -RELEASE FOR TRANSIT E\_REL\_TRA when the movement has been initiated in NCTS.

It is important to mention that a significant advantage is that the eTIR specifications are based on the World Customs Organisation Data Model (WCO DM) and the NCTS specifications are developed following the European Union Customs Data Model (EU CDM), which is also based on the WCO DM. By using the same data models, the harmonisation and standardisation of the systems is simplified.

A link to the full data mapping analysis for these pairs of messages can be found in chapter V.B.

### **1. Assumptions**

To complete the data mapping analysis, the following assumptions are made:

(a) A conversion service will be implemented that will be referred to as 'eTIR convertor' in order to facilitate the conversion of eTIR messages to NCTS and vice versa to support the interface between the two systems. A textual explanation of the proposed functions that will be implemented are presented per each Data Group/Data item at column "Resolution options".

(b) In eTIR.I15 the following levels are supported:

- <CONSIGNMENT> with multiplicity of the Data Group set to 0..unbounded.
- <CONSIGNMENT.CONSIGNMENT ITEM> with multiplicity of the Data Group set to 0..unbounded.

In NCTS.IE015 the following levels are supported:

- <CONSIGNMENT> with multiplicity of the Data Group set to 1x.
- <CONSIGNMENT.HOUSE CONSIGNMENT> with multiplicity of the Data Group set to 999x.
- <CONSIGNMENT.HOUSE CONSIGNMENT.CONSIGNMENT ITEM> with multiplicity of the Data Group set to 9999x.

In NCTS/eTIR interface has been agreed that:

- eTIR <CONSIGNMENT> will be mapped with NCTS <CONSIGNMENT. HOUSE CONSIGNMENT> level.
- eTIR <CONSIGNMENT.CONSIGNMENT ITEM> will be mapped with NCTS <CONSIGNMENT. HOUSE CONSIGNMENT.CONSIGNMENT ITEM> level.

Note: It has been agreed that 999x repetition supported by NCTS are considered sufficient for conversion.

(c) The Technical specifications of NCTS-P5\_DDNTA\_v05.13.01 have been used to perform the mapping. Based on these specifications, TIR movements are not related with safety and security data, thus in the analysis performed the data item TRANSIT OPERATION.Security is filled with the value '0'. Nevertheless, three more columns <security EQUAL to 'x'> have been added in the excel file in order to highlight the identified conversion issues, in case it will be decided that safety and security data will be also included in the eTIR messages.

Note: Information related to ENS particulars that will be introduced to NCTS messages due to ICS2/NCTS Interface are not presented in the excel file. Possible impact on NCTS P5 Data elements because of ICS2/NCTS interface is reported in statistic sheet for informative reasons.

If it is not possible for the trader to provide eTIR and safety/security data in the same time the border crossing will be not facilitated, and the advantage of the TIR Convention will decrease.

(d) ACTOR Demographics:

- In case demographics cannot be retrieved from the EOS database, the web-service available in eTIR will retrieve the information about the TIR Carnet Holder from the International TIR Data Bank (ITDB). The eTIR convertor can be used to request via this webservice, the information needed to fill in the required ACTOR demographics.

Note: According to NCTS-P5 (DDNTA-v05.13.01 - CSE-v51.00) the following Data information is usually reported under ACTOR Demographics: Name, Street and number, Postcode, City, Country and Contact person details such as (email, phone number etc.).

Please note that this information may be enriched based on the outcome of the study for NCTS and ICS2 interface with the following data items ('Sub-division', 'Street additional line', 'P.O. Box', 'Street' and 'Number').

## V. PoC Results

### A. Business Process Analysis Results

The project team established the following main business process scenarios:

- 01-00 Transit movement starting in Iran, passing through Turkey entering the EU in Bulgaria with the destination in Romania (IR-TR-BG-RO).
- 02-00 Transit movement starting in Germany, exiting the EU in Poland with the destination in Belarus (DE-PL-BY).

- 03-00 Transit movement starting in Switzerland, passing through the EU with the destination in Belarus (CH-EU-BY).<sup>3</sup>
- 04-00 Transit movement starting in Belarus, passing through the EU with destination in Switzerland (BY-EU-CH).
- 05-00 Transit movement starting in Belarus, passing through Lithuania with destination in Russia (BY-LT-RU).
- 06-00 Transit movement starting in Greece, passing through Montenegro, Serbia, with destination in Hungary (GR-ME-RS-HU).

The business processes are depicted in Business Process Model (BPM) diagrams. The BPMs show what tasks are performed by the various actors in chronological order. Each process is composed by:

- The Main Business Process diagram, and
- Its inter-dependent sub-process diagrams.

For each Main Business Process, a process identification number is assigned (01.00) followed by the name of the scenario (e.g. IR-TR-BG-RO) and the general mention “Main Process” (e.g. 01.01 IR-TR-BG-RO Main Process).

The related inter-dependent sub-processes are subsequently numbered followed by the name of the specific sub-process (e.g. 01.01 Process Accept guarantee).

This way of representation helps the reader to follow the processes more easily and not to be lost in a unique overcomplicated diagram.




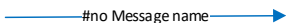
The diagrams also depict the information exchanges that are necessary for the interaction of the two systems. Please note that not all of the messages are shown in the BPMs, only the ones that are relevant to the interconnection.


The team also established the following independent sub-process scenarios:


- Amendment (eTIR) Discrepancies at Destination (EU)
- Discrepancies at EU Entry
- Diversion
- Incident in the EU with Destination in the EU, Incident in the EU with Destination outside the EU and Incident in a non-EU country
- Query
- Rejection

These business cases are created to complement the analysis of the main processes and to cover most of the cases that might occur in an eTIR-NCTS procedure.

All the processes are structured in the same way, for a consistent reading.

They all have a start event  and an end event . In between, the tasks/activities  are performed by the different stakeholders (Customs Authorities, Traders) and linked by the sequence flow arrows or the message arrows .

Within the diagrams, the “sub-processes”  are clickable and they lead directly to

the sub-process diagrams. On the top right corner of each sub-process, a home button  is present and takes back to the Main Process diagram.

<sup>3</sup> Switzerland was taken as an example despite the fact that they are not bound by Annex 11.

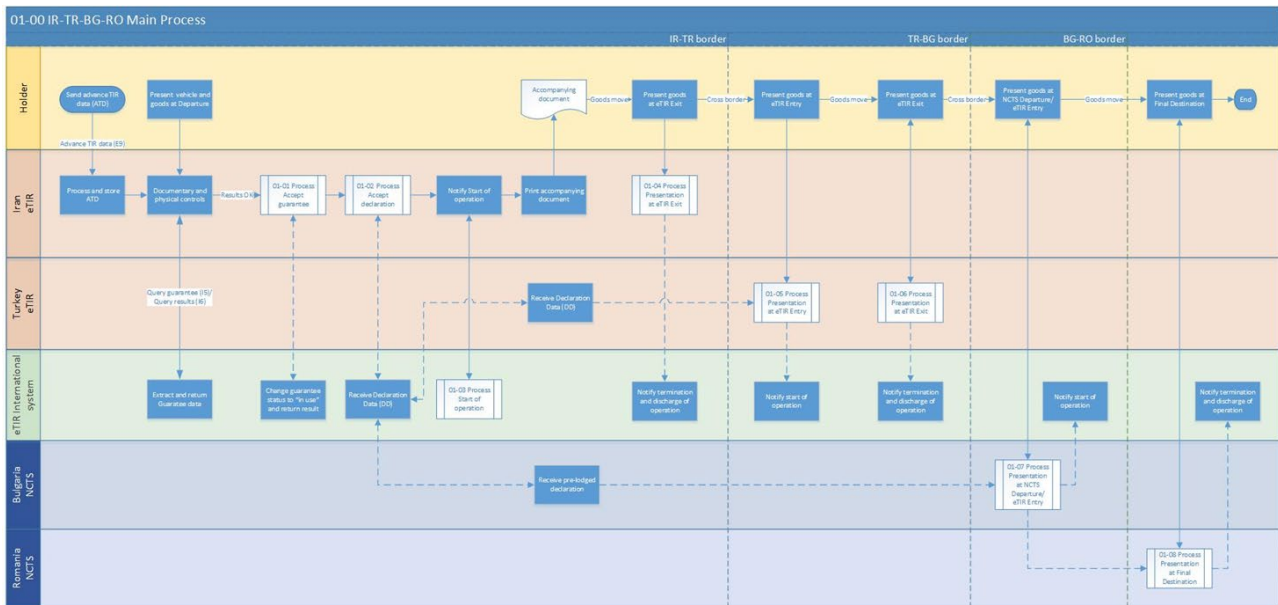


To navigate through the diagrams in the PDF format, there is also the possibility to open the “Bookmarks” feature which is usually located on the left side panel of the PDF reader application.

Instead, for the Visio 2016 files, at the bottom of the document the different sections containing the processes are listed.

In the next page, the example of one of the Main Processes is depicted. All diagrams can be found in Annex 1 to this document, in their original format (Visio 2016) and in PDF.

Figure III  
Business Process Model example


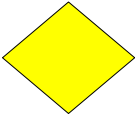






1. Components of the processes

The table below depicts the most used components in the processes of this document.

Table 5  
Components of the processes

BPM object	BPM object name	Description
	Pool	A pool represents a participant in a process. It acts as a "graphical container" used for partitioning a set of activities from other pools.
	Lanes	Lanes are sub-partitions of a pool, used to organise activities. Lanes can be represented horizontally or vertically.
	Start Event	Event that indicates the start of the process activities.
	End Event	Event that indicates the end of the process activities.
	Sub-process	Represents a sub-process for which the lower level of details is available in another, more focused, diagram.

<i>BPM object</i>	<i>BPM object name</i>	<i>Description</i>
	Task	Indicates an atomic activity within the process, i.e. a task which cannot be broken down to a finer level of detail.
	Gateway	Decision box or gateway, used to control the process flow, i.e. to decide whether the process flow must follow one direction or another.
	Home button	By clicking this image, it takes the user back to the start screen (Main Process).
	Sequence Flow	Used to show the order in which activities are performed.
	Message	Represents information messages between actors.
	Sequence Flow	Used to show the order in which previous or follow-up activities are performed. It is also used in the main processes, to show the order of the most relevant activities which are happening within the sub-processes.

## B. Data elements and Information exchanges Analysis Results

The analysis led to the below categorization of the Data Items/Data Groups (Information presented in the “eTIR and NCTS Data mapping analysis report- v.1.00” file embedded below):

- Conversion feasible: Data Items/Data Groups, that are supported both in NCTS and eTIR and are directly mapped between the two domains (no function or extra processing of NCTS or eTIR data is required as to achieve the mapping).
- Conversion feasible with actions: Data Items/Data Groups that are supported both in NCTS and eTIR, but they are not directly mapped since deviations in specific criteria such as optionality, format, etc. have been identified. Mapping of the Data Elements can be achieved after further processing performed by the NCTS-eTIR convertor.
- Not supported in eTIR or NCTS: Data Items/Data Groups that does not exist in one of the systems and is Optional in the other (e.g. NCTS Data Group AUTHORISATION is optional and not supported in eTIR).
- Blocking issues: Issues that cannot be resolved unless a different business approach is followed which will lead to updates of the technical specifications of either NCTS or eTIR.

Details for each of the aforementioned categories can be found in sheets: “Statistics I15-IE015” and “Statistics IE029-I7,I9” of file “eTIR and NCTS Data mapping analysis report v.1.00”<sup>4</sup>. For the facilitation of the reviewer, a visualization in numbers of the conversion categories is presented below:

<sup>4</sup> <https://unece.org/sites/default/files/2021-07/eTIR and NCTS Data mapping analysis report v.1.00.xlsx>

## 1. I15 – Notify Customs vs IE015-DECLARATION DATA E\_DEC\_DAT

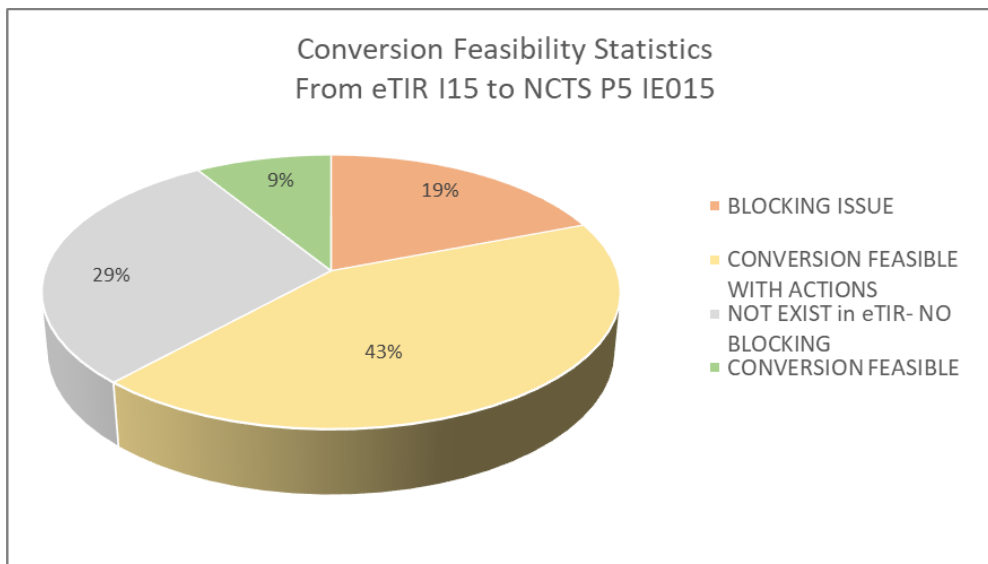
The only two blocking issues for which no solution is currently proposed and where input from the Technical Implementation Body (TIB) and TAXUD is required, are related to:

- **CUSTOMS OFFICE OF DEPARTURE:** In case an eTIR transport is initiated at an Office of Departure outside EU, then the NCTS-P5 Office of Departure (located in EU) is not available in I15 message. The only available data is the country where the EU Office of Departure is located and can be extracted by the itinerary.
- **CUSTOMS OFFICE OF DESTINATION:** In case the final destination of an eTIR transport is an Office of Destination outside EU, then the NCTS-P5 Office of Destination is not available in the I15 message. Only the itinerary, thus the country exiting the EU borders, is available.

For the rest of the blocking issues reported in the “Statistics I15-IE015” sheet, suggested conversion resolution by updating technical specifications can be implemented, upon business confirmation.

Figure IV

### From eTIR I15 to NCTS-P5 IE015 Data Mapping Statistics



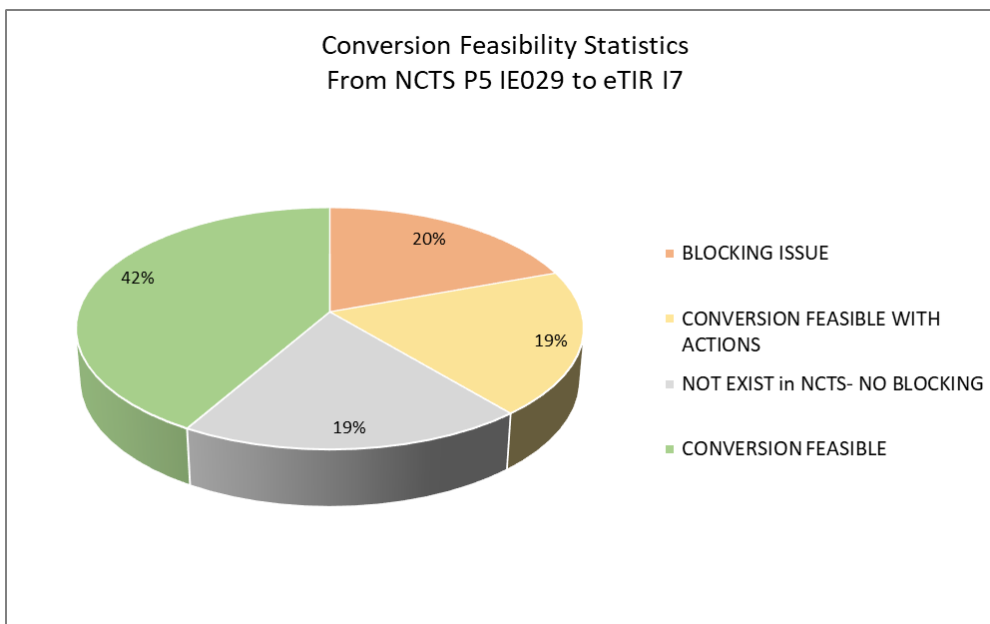
## 2. I7 – Record advanced cargo Information vs IE029 -RELEASE FOR TRANSIT E\_REL\_TRA

The only blocking issue for which no solution is currently proposed and where input from TIB and TAXUD is required, is related to:

- **CUSTOMS OFFICE OF DESTINATION:** In NCTS, the Data group presented in IE029 message is referring to CUSTOMS OFFICE OF DESTINATION always located in EU. The information cannot be mapped with CUSTOMS OFFICE OF DESTINATION of eTIR transport since it can be located outside EU.

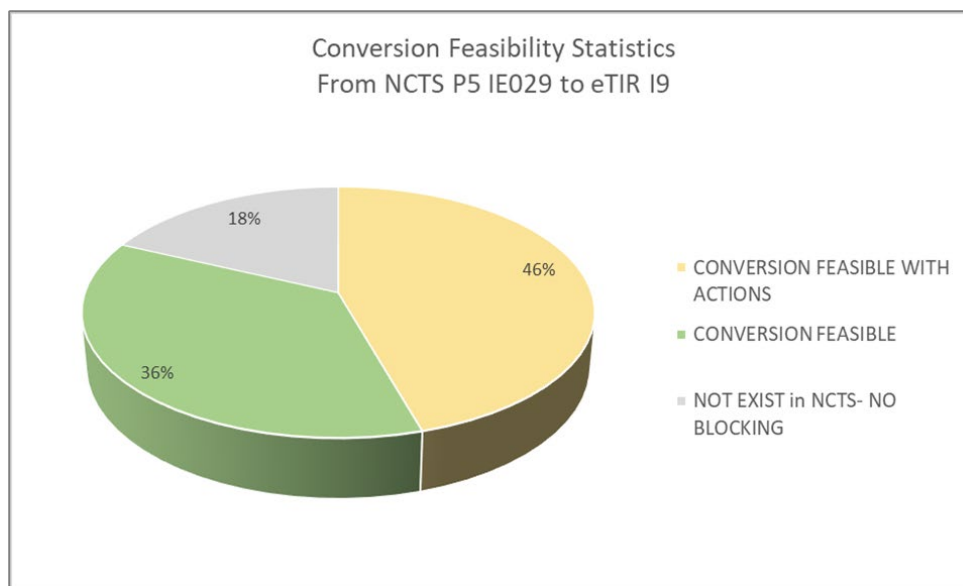
For the rest of the blocking issues reported in the “Statistics IE029-I7,I9” sheet, suggested conversion resolution by updating technical specifications can be implemented, upon business confirmation.

Figure V  
**From NCTS-P5 IE029 to eTIR I7 Data Mapping Statistics**



**3. I9 – Start TIR operation vs IE029 -RELEASE FOR TRANSIT E\_REL\_TRA**

Figure VI  
**From NCTS-P5 IE029 to eTIR I9 Data Mapping Statistics**



The analysis conducted in this study led to the conclusion that after the blocking issues mentioned above are resolved, the rest of the deviations reported in “eTIR and NCTS Data mapping analysis report v.1.00”, can be bridged and transformation between the messages of the two domains is feasible.

The full data mapping analysis can be found at: <https://unece.org/sites/default/files/2021-07/eTIR and NCTS Data mapping analysis report v.1.00.xlsx>

**C. Conclusive assessment**

Further to the entry into force of Annex 11 of the TIR Convention, 1975 and in line with the general goal of dematerialisation of exchanges between customs and traders (Article 6 UCC

[R01]), EU Contracting parties will have to handle the eTIR procedure and ensure that their customs ICT systems can communicate with the eTIR international system.

This proof of concept explored the possibility to develop a single connection between NCTS and the eTIR international system, in order to facilitate the handling of the eTIR procedure for all EU Member states and, possibly, contracting parties to the Common Transit Convention that are bound by Annex 11.

NCTS is already used to handle electronically TIR operations in the EU and is used in practice by all involved stakeholder such as EU TIR Carnet holders, non-EU TIR Carnet holders, EU National associations, the IRU as well with all EU customs involved during EU TIR operations.

The current proposal is to extend the use of NCTS for both the TIR and the eTIR procedures, thus, not only in order to continue the current dematerialization of the exchange of voucher 2 for paper TIR carnet, but also to handle all electronic processes required by the eTIR procedure.

Taken into account that paper TIR Carnets will continue to be used for TIR transports involving Contracting Parties not bound by Annex 11, Contracting Parties which have not yet interconnected their customs system with the eTIR international system, as well as, for TIR transports where the holder would prefer the paper TIR procedure, NCTS will be used for both procedures (paper and digital).

The interconnection of NCTS with the eTIR international system will be a challenge at a technical level with the necessity to convert eTIR messages into NCTS messages, and vice versa, and will also require the adaptation of NCTS specifications as well as, possibly, the next version of the eTIR specifications.

Nevertheless, this solution has several advantages:

- All Stakeholders could use the same IT systems as today, which means that the authentication of the holders, the business scenario and the exchange of message between traders and customs will be facilitated;
- A large part of the NCTS messages can be converted to be used by the eTIR international system, and on the opposite side the eTIR specifications may be adjusted for facilitating the dialogue with NCTS;
- The cost for EU Contracting Parties will be reduced because this solution will be based on a well-known system, NCTS, with specifications centrally developed by the Commission. It will avoid the development of new ad hoc system by each EU Member state.
- The use of NCTS will facilitate the continuation of trader interfaces (such as TIR-EPD or other TIR-EDI solution) currently used for TIR, allowing traders to send TIR data together with safety and security data, thus facilitating border crossings.
- The use of NCTS will allow a faster implementation of eTIR in EU Member states compared to the development of a new application from scratch.

The proof of concept tends to highlight that even if gaps exist between the NCTS and eTIR specifications, those differences can be bridged with efforts from both sides.

## VI. Next Steps

The team proposes the following further steps:

- Publish the PoC to the EU Member States;
- Organise workshop(s) for the EU MS to present the conclusions of the PoC;
- Submission of the PoC as a formal document of the third session of WP.30/GE.1 session or to a session of TIB;
- Presentation of the PoC at the third session of WP.30/GE.1 session;

- Elaboration of an implementation plan and continuation of the work with a technical analysis;
  - Elaboration of the legal changes required in the EU legal framework in line with connection to the eTIR international system chosen;
  - Elaboration of further proposals for the eTIR technical specifications;
  - Develop a prototype involving the MS;
  - Implement eTIR in NCTS according to the EU project governance lifecycle.
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