



**Economic and Social
Council**

Distr.
GENERAL

ExG/COMP/2004/23
20 October 2004

ENGLISH ONLY

ECONOMIC COMMISSION FOR EUROPE

INLAND TRANSPORT COMMITTEE

Working Party on Customs Questions
affecting Transport

Informal Ad hoc Expert Group on Conceptual and
Technical aspects of Computerization of the TIR Procedure
(26-27 October 2004)

ACTIVITIES OF THE INFORMAL AD HOC EXPERT GROUP

Reference Model of the TIR Procedure

Future projects for the Reference Model of the TIR Procedure

Note by the secretariat

A. BACKGROUND

1. At its fourth session, the Expert Group held first considerations with regard to preparing a detailed description of the eTIR Project (ExG/COMP/2004/10, paras. 15-17). At its fifth session, the group continued its consideration on the basis of a presentation made by the secretariat, and requested the secretariat to prepare, for its forthcoming session, a document containing an elaboration of the issues raised in the course of the discussion (ExG/COMP/2004/18, paras. 13-15).

2. This document contains a draft introduction to Chapter 2 of the Reference Model of the eTIR Project and aims at providing the main principles which govern the functioning of the eTIR system and provide guidance for its step-by-step implementation. The first part of the introduction to Chapter 2 describes the fully implemented eTIR system and the second part its step-by-step implementation.

3. B. HIGH LEVEL REQUIREMENTS OF THE eTIR SYSTEM

4. The general principles of the eTIR system give a high level overview of the system on which the future functional and technical specifications of the project will be based. They provide not only a general view, but also establish high-level guidelines allowing for a smooth transition from the paper-based system to a fully computerized system.

5. Before addressing the principles which will guide the transition between the two systems, we will identify the general principles which describe the fully implemented eTIR System.

1. eTIR SYSTEM

1.1. DEFINITIONS AND ROLES¹

1.1.1. TIR Transport

The TIR transport is the transport of goods from a Customs office of departure to a Customs office of destination, under the procedure called the TIR procedure, laid down in the TIR Convention (Article 1(a)). The TIR Transport begins at the first Customs office of departure and ends at the last Customs offices of destination.

1.1.2. TIR Movement²

The TIR movement is the part of a TIR transport carried out without intermediate loading or unloading. It begins at a Customs office of departure and ends at a Customs office of destination.³

1.1.3. TIR Operation

The TIR operation is the part of a TIR Movement carried out between two subsequent Customs offices within one single country which are part of the itinerary of a TIR movement.⁴ It starts at a Customs office of departure or entry and terminates at a Customs office of destination or exit.

¹ The terms defined in this chapter refer to the eTIR system; some have the same definition as in the paper-based system, some have new definitions whereas some are totally new.

² The introduction of this concept aims at simplifying the description of the procedure and at better organizing the information.

³ In the paper based TIR system, a TIR Transport would have been composed of a maximum of 3 TIR Movements, if such concept had existed.

⁴ For countries of transit and countries where no intermediate loading or unloading takes place, the TIR Operation constitutes also the national part of the TIR Transport.

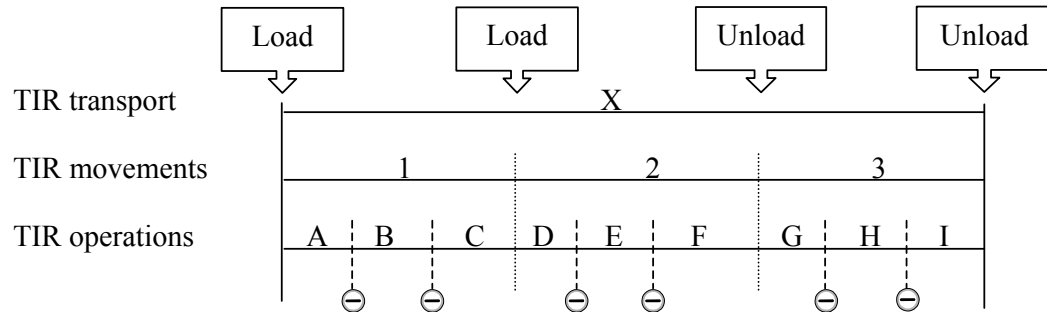


Figure 1: Example of subdivision a TIR transport X

1.1.4. Roles of the Authorities

1.1.4.1. Customs office of departure

The Customs office of departure accepts the declaration submitted by the TIR operator, begins the TIR movement and starts the first TIR operation of the TIR movement.

The Customs office of departure beginning the first TIR movement of a TIR transport also begins the TIR transport.

1.1.4.2. Customs office of destination

The Customs office of destination ends the TIR movement and terminates the last TIR operation of the TIR movement.

The Customs office of departure ending the last TIR movement of a TIR transport also ends the TIR transport.

1.1.4.3. Customs office of entry

The Customs office of entry starts the TIR operation.

1.1.4.4. Customs office of exit

The Customs office of exit terminates the TIR operation.

1.1.4.5. eTIR system administration

The eTIR system administration manages the eTIR system. It ensures the circulation of messages between Customs authorities and other relevant parties, is responsible

for their storage as well as validating the authorization of TIR operators, the existence of guarantees, and the proposed itineraries.¹

1.1.5. Roles of the private sector

1.1.5.1. TIR operator²

The TIR operator performs the TIR transport and is responsible for the data provided in the declaration.

1.1.5.2. Guarantor

The guarantor provides the TIR operator with a valid international guarantee (“International” meaning that the guarantor must have national branches in all countries involved in the TIR Movement). These national branches serve as national counterparts for each Customs authority involved in the TIR Movement. In other words the guarantor is a guarantee chain.³

1.1.6. Authorized third parties

Third parties may be authorized to act on behalf of the authorities or the private sector to perform all or some of the above-mentioned roles or certain tasks related to them.

1.2. FUNDAMENTAL PRINCIPLES

1.2.1. eTIR System brief

The eTIR system is an international system devised for the exchange of Customs information related to the international transit of goods, vehicles and/or containers. The system is a platform providing all Customs offices concerned with advance information.

The network is composed of national (or regional) Customs systems managing the national (or regional) parts of the procedure and of an international EDI platform allowing the exchange of information between the national (or regional) elements. This international platform is composed of web services, databases and web applications (see 1.3.2).

In addition, the eTIR system has interfaces with other systems (e.g. the guarantors, the TIR operators, ...) allowing for an efficient integration of information.

¹ In accordance with the instructions by the WP.30 at its 106th session, the eTIR system administration shall be established on the basis of an international, centralized database whose aim it is to facilitate the secure exchange of data between national Customs systems (TRANS/WP.30/212, para. 26).

² The role of the TIR operator is comparable to the one of the TIR Carnet holder in the paper-based system.

³ In the TIR Convention national guaranteeing associations perform the role of national branch of the guarantor.

1.2.2. Customs declaration

The purpose of the declaration is to provide the Customs office of departure with information on the goods transported as well as on the vehicles or containers transporting them. The TIR operator submits the declaration to the Customs office of departure to launch the acceptance procedure. Once the Customs office of departure has accepted the declaration, together with the goods and vehicles and/or containers, the information contained in the declaration becomes Customs information and can be exchanged with other Customs authorities.

1.2.2.1. Declaration methods

The eTIR system is designed to accept various declaration methods. The general rule is that the information provided in the declaration falls under the responsibility of the TIR operator and is submitted to the Customs office of departure for acceptance.

The TIR operator can submit the declaration either:

- directly to the national Customs systems or
- via the eTIR central system.

Moreover, depending on the TIR operator's technological means, awareness and access rights to the various systems, the declaration can be made:

- by means of an EDI message,
- by means of an online form,
- via a computer made available at the Customs office.

	EDI message	Online form	Customs office
National system	Optional ¹	Optional ¹	Optional ¹
eTIR central system	Yes	Yes	Optional ¹

The submission of the declaration via the eTIR central system is available for those countries which do not dispose of a national system allowing TIR operators for the submission of declarations. However, it remains responsibility of Customs authorities to provide their national TIR operators with the appropriate access rights to the eTIR declaration system.

Finally, TIR operators may use the assistance of third parties which are authorized to provide Customs with data on their behalf.

1.2.2.1.1. Sending an EDI message to the national system

TIR operators can submit the declaration (standard EDI message) to the national system directly from their own computer systems. The national system will request a validation

¹ Possible only in countries where national administrations provided such facility.

by the eTIR system (see 1.2.8.1) and return the results of the validation process to the national system. If the information in and the structure of the declaration are valid, the declaration is sent to the Customs office of departure.

1.2.2.1.2. Filling-in the national electronic declaration forms

By using the national electronic declaration forms, TIR operators will be able to key in and submit their declaration from their premises. Each country may use its own national electronic declaration forms. However, national declaration forms will have to meet international standards in as far as exchanges with the eTIR central system are concerned. The national system will then request a validation by the eTIR system (see 1.2.8.1) and return the results of the validation process to the national system. If the information in and the structure of the declaration are validated by the system, the declaration is sent to the Customs office of departure.

1.2.2.1.3. Using a computer connected to the national system made available at the Customs office of departure

Some Customs administrations provide computers connected to their national system at the Customs offices to allow TIR operators to key in and submit their declaration. Once the data are entered into the national system, the procedure is the same as in 1.2.2.1.2. This facility, though useful for those TIR operators which do not have Internet access at their premises, is not recommended since it does not allow prior notification (see 1.2.2.4).

1.2.2.1.4. Sending an EDI message to the eTIR central system

By means of a web service, TIR operators can submit the declaration (standard EDI message) to the eTIR system directly from their own computer systems. The eTIR system will validate the declaration (see 1.2.8.1) and return the results of the validation process to the TIR operator. If the information on and the structure of the declaration are validated by the system, the declaration is sent to the Customs office of departure.

1.2.2.1.5. Filling-in the eTIR central system's declaration web forms

Using the eTIR declaration web forms, TIR operators will be able from their premises to key in and submit their declaration. The eTIR declaration web form is a graphical interface allowing for the use of web services to those TIR operators which do not have complex computer systems or do not require advance features such as direct EDI connection. Next, the eTIR system will validate the declaration (see 1.2.8.1) and return the results of the validation process to the TIR operator. If the information in and the structure of the declaration are validated by the system, the declaration is sent to the Customs office of departure.

1.2.2.1.6. Using a computer connected to the eTIR central system made available at the Customs office of departure

Some Customs administrations provide computers connected to the eTIR system at the Customs offices to allow TIR operators to key in and submit their declaration by means of

the eTIR declaration web forms. The procedure is the same as 1.2.2.1.5 except that the TIR operator does not fill-in and submit the declaration from his premises. This facility, though useful for those TIR operators which do not have Internet access at their premises, is not recommended since it does not allow prior notification (see 1.2.2.4).

1.2.2.2. Declaration unique identifier

The eTIR system provides every declaration with a unique identifier. Depending on the declaration method, the unique identifier is provided at the beginning of the declaration process or might be given only at the moment of validation of the declaration (see 1.2.8.1).

The declaration unique identifier is by nature unique and unchangeable. When different versions of the same declaration are submitted, all have the same unique identifier but receive different version numbers. Previous versions of the declaration are attached to the declaration.

1.2.2.3. Authorized third parties

Authorized third parties can provide an electronic declaration service to TIR operators. They provide the Customs office of departure with the declaration in electronic form on behalf of the TIR operator by any means at their disposal (national declaration system or directly into eTIR).

The declaration service provider should be authorized by Customs authorities as well as by the TIR operator on whose behalf he acts.

1.2.2.4. Prior notification system

To facilitate Customs processing of the declarations and to allow a better risk management, the declaration should be submitted electronically to the Customs office of departure before the cargo is presented. The eTIR central system as well as the national declaration systems allow TIR operators to submit their declaration in advance.

1.2.2.5. Use of codes

The eTIR system EDI messages are designed to avoid, if possible, the use of free text descriptions. Apart from translation problems and the possible use of different character sets (see 1.6), free text descriptions may be misleading. Therefore, the use of international standard codes such as the ISO country codes or the HS codes is not only possible but also recommended.

1.2.2.6. Elements composing the declaration

Apart from the declaration unique identifier and the version number, the declaration is constituted of a number of other elements. Some of these elements are mandatory (M) whereas some are optional (O).

1.2.2.6.1. TIR operator (M)

Information on the physical or legal person which is responsible for transporting the goods and submitting the declaration, together with an electronic signature.

1.2.2.6.2. Guarantee/Guarantor (M)

The guarantor(s)¹ guaranteeing the TIR movement(s) of the TIR transport (see 1.2.7).

1.2.2.6.3. Goods (M)

Information on the goods transported (e.g.: type, quantity, identifications, ...) as well as other accompanying data.

1.2.2.6.4. Vehicles/Containers (M)

The vehicles and/or containers used to carry the goods.

1.2.2.6.5. Itinerary (M)

Customs offices of departure and destination as well as all other Customs offices en route (see 1.2.7).

1.2.2.6.6. Accompanying documents (M)

Reference to all documents, paper or electronic, which are accompanying the declaration.

1.2.2.6.7. Consignee and Consignor (M)

The physical or legal persons which send and receive the goods.

1.2.2.6.8. Prior Customs regime (O)

The Customs regime under which the goods were placed before starting the TIR transit regime.

1.2.2.6.9. Subcontractors (O)

The physical or legal person which performs the transport or a part of the transport on behalf of the TIR operator.

1.2.2.6.10. Value of the goods (O)

Value of the goods listed under 1.2.2.6.3.

¹ Or guarantee(s)

1.2.3. Acceptance of the declaration

The Customs office of departure will accept the declaration submitted by the TIR operator and validated by the eTIR central system (see 1.2.8) if the declaration fulfils both national and international criteria for acceptance.

The accepted declaration will be transmitted to the eTIR central system, which will generate the required TIR movement message(s). A declaration results in one or many TIR movements depending on the number of loading and unloading places.

1.2.4. TIR movement message

The purpose of the TIR movement message is to provide the Customs office of destination as well as Customs offices of entry and exit with information on the goods transported, the vehicles or containers transporting them as well as information on seals. The eTIR central system creates the TIR movement message(s) on the basis of the accepted declaration(s) sent by the Customs office(s) of departure in the course of the TIR Transport.

1.2.4.1. TIR movement unique identifier

The eTIR system provides every TIR movement with a unique identifier. This unique identifier is by nature unique and unchangeable.

1.2.4.2. Elements composing the TIR movement message

The elements composing the TIR movement message are the TIR movement unique identifier of the TIR movement and all the elements provided in the declaration(s). In addition, the Customs office of departure provides additional elements.

1.2.4.2.1. Seals (M)

Information on the seals affixed to the load compartment(s) and/or container(s).

1.2.4.2.2. Electronic signature (M)

The Customs office of departure provides an electronic signature certifying the identity of the Customs office which has affixed the seals.

1.2.5. TIR operation messages

The purpose of the TIR operation messages is to provide the eTIR central system with information on the progress of the TIR movement. The purpose of messages sent by the Customs offices of departure or entry is to inform the Customs office of destination or exit as well as the eTIR system that the TIR operation has started. Messages sent by the Customs offices of destination or exit inform the Customs offices of entry or departure and the eTIR system that the TIR operation is terminated.

1.2.5.1. TIR operation unique identifier

The eTIR central system provides every TIR operation with a unique identifier. This unique identifier is by nature unique and unchangeable.

1.2.5.2. Elements composing the TIR operation messages

The elements composing the TIR operation messages are the unique identifier of the TIR operation and the reference to the TIR movement. In addition, the Customs offices of departure or entry and the Customs offices of destination or exit provide additional elements.

1.2.5.2.1. TIR operation start information

The Customs office of departure or entry provides a number of information:

Electronic signature (M)

An electronic signature to identify and certify the source of the message.

Time limit for transit (M)

Time limit for the TIR operation.

National Ledger (M)

National ledger number under which the TIR operation takes place.

Customs offices of presentation – national itinerary (O)

Customs office(s) at which the cargo has to be presented before reaching the Customs office of destination or exit.

1.2.5.2.2. TIR operation termination information

The Customs offices of destination or exit provides a number of information:

Electronic signature (M)

An electronic signature to identify and certify the source of the message.

Reservations (O)

In case of doubts with regard to TIR operation, the Customs office of destination or exit can indicate that it has terminated the TIR operation with reservations.

1.2.6. International Guarantee

In order to be allowed to perform a TIR movement, the TIR operator must have a guarantee valid for all countries involved in the TIR movement.

While processing the validation of a specific declaration, the eTIR system requests an electronic guarantee certificate from the guarantor (see 1.2.8.1.3).¹ The system stores the guarantee information and links it to the TIR movement data.

The guarantee is active from the moment the TIR movement starts until all TIR operations composing the TIR movement are discharged.

1.2.7. Itinerary

To ensure the transmission of advance cargo information to all Customs offices involved in the TIR Movement, the TIR operator must provide a detailed itinerary in the declaration. The eTIR system provides a service listing all Customs offices where eTIR operations can be accomplished.

1.2.7.1. Rerouting

In case the chosen itinerary or the destination of the goods has to be updated, two possibilities are offered to the TIR operators.

1.2.7.1.1. Rerouting notification

The eTIR system offers the TIR operators the possibility to inform Customs of the rerouting of a cargo. In such case, the system will cancel the messages sent to those Customs offices expecting the cargo and will inform the Customs offices involved in the new itinerary.

1.2.7.1.2. No rerouting notification

The TIR operator may present the cargo at a Customs office outside the itinerary without prior notification. In such case, the Customs office will recuperate all data on the TIR Movement from the eTIR system and at the same time inform the eTIR system of the rerouting.

1.2.8. Validation by the eTIR system

1.2.8.1. Validation of the declaration

1.2.8.1.1. Validation of the itinerary

The eTIR system verifies that all countries on the itinerary are covered by the guarantor or guarantee declared. Moreover it will verify that all declared Customs offices are equipped to process eTIR messages.

¹ Alternatively, the TIR operator can also get electronic guarantee certificates directly from the guarantor. The TIR operator then provides the certificate with his declaration. This method is similar to the issuance and distribution of TIR Carnets and has therefore the same risk with regards to theft, loss or withdrawal of certificates.

1.2.8.1.2. Validation of the TIR operator

The eTIR system verifies that the TIR operator is authorized to perform TIR Movements in general and that he is not excluded from any of the countries declared in the itinerary. This validation is performed using the International TIR Database.

1.2.8.1.3. Validation of the guarantee

The eTIR system request the guarantors to confirm the validity of the guarantee for the goods transported, the declaring TIR operator and all countries declared in the itinerary.¹

1.2.8.1.4. Other validations

Other electronic validations will be added if other systems linked to eTIR are computerized.

1.2.9. Data exchange

1.2.9.1. Central database

The eTIR system is built around a central database. The database serves to store the information exchanged and acts as repository for all information concerning eTIR.

1.2.9.2. Communication

The eTIR system uses the Internet to exchange messages (see 1.2.10.3 - Security).

1.2.9.3. Standard messages

The exchange of data with the eTIR system is done using a set of predefined standard messages. Three major types of messages are described in these high-level requirements: the declaration, the TIR Movement message and the TIR operation messages. Other standard messages are needed to ensure the functioning of the eTIR system. They are described in the technical specifications.

1.2.9.4. Advance cargo information

One of the aims of the eTIR system is to provide Customs authorities with information prior to the arrival of cargos. This applies to information provided by the private sector as well as to information exchanged between Customs authorities. Therefore, the eTIR system forwards all information as soon as it has been processed.

¹ Alternatively, the eTIR system can validate the authenticity and validity of the electronic guarantee certificate provided by the TIR operator.

1.2.10. Security

1.2.10.1. The elements of security from the TIR Convention

1.2.10.1.1. Controlled access

Controlled access is a major principle of the TIR system. Although controlled access is not part of the eTIR project, the use of the ITDB is integrally part of the validation of the TIR operator (see 1.2.8.1.2).

1.2.10.1.2. Vehicle or container security

Another principle of the TIR system is the security of the vehicles and containers. Therefore, the number and date of certificates of approval of the vehicles and/or the identification numbers of the contained shall be indicated in the declaration and of the TIR Movement data.¹

1.2.10.2. Security data elements

In line with the WCO recommendation concerning supply chain security, a number of data elements may have to be added to increase the security of the eTIR system.

1.2.10.3. eTIR system security

The eTIR system is secured with the latest security methods applicable to systems communicating via the Internet. All messages are encrypted and the access is restricted to authorized users. The system is set up to function 24/7.

1.2.11. Fallback solutions and certified report

In case of problems in the course of a TIR movement, an accompanying document, printed by the office of departure, provides all information regarding the TIR movement. This document also covers the need in case of accident and incidents and replaces the certified report.

In the future, the access to the TIR movement information by other authorities like police will be made available by means of portable technologies such as those embarked in modern cell phones or PDAs.

¹ In the future, if these documents are computerized, a link to their electronic version should be developed.

1.3. DELIVERABLES

1.3.1. National deliverables

1.3.1.1. National management of eTIR data

The national computer systems of the countries connected to the eTIR system process electronically the data from and to the eTIR system. The national applications are primarily focused on the management of the TIR operations.

1.3.1.2. Bridges to the international eTIR system

National computer systems communicate with the eTIR central system via the Internet using a predefined set of standard messages. Specific modules, making use of the eTIR web services (see 1.3.2.2), will link national systems with the eTIR central system.

1.3.1.3. User manuals and training

Customs administrations provide their Customs officer with the necessary documentation and training to ensure a proper use of the national parts of the eTIR system.

1.3.2. International deliverables

1.3.2.1. Central databases

The eTIR platform is based on the central database system. The database stores the data and contains the functional rules that allow the proper functioning of the eTIR central system. Without entering into technical details, the database system can be subdivided into three major parts.

1.3.2.1.1. Guarantee database

The guarantee database stores data on guarantees and links them with the TIR movements database.

1.3.2.1.2. TIR movements database

The TIR movements database stores all data regarding the TIR movements as well as the declarations which have been submitted to initiate TIR movements.

1.3.2.1.3. TIR operations database

The operations database stores all data regarding the TIR operations, in particular their status with regards termination and discharge.

1.3.2.2. Web services

The eTIR web services allow authorized computer systems to interact securely with the eTIR system. The web services provide, in a standard format, the functions which allow querying and updating the eTIR databases.

1.3.2.3. Web applications

The eTIR web applications are the graphical interface of the web services. They allow users to use the web services without having to develop their own applications.

1.3.2.4. Definition of standard exchange messages

All messages sent to or received from the eTIR system are defined and listed in the technical specifications.

1.3.2.5. Technical documentation

The technical documentation will help Customs authorities and the private sector to develop their specific applications connected to the eTIR system. It mainly describes the web services and the standard messages.

1.3.2.6. User manuals

The user manuals contain the necessary information for end-users to use the eTIR system. They describe the procedures as well as the tools available in eTIR.

1.3.2.7. Helpdesk

The helpdesk is available to Customs authorities and the private sector to help in the implementation of the specifics parts of the eTIR system.

1.3.3. Other deliverables

The other elements are necessary for the functioning of the eTIR system but, if available elsewhere, are not integrated into the eTIR system.

1.3.3.1. Customs offices database

In order to ensure the validation of the itineraries, the eTIR system uses a database in which information on all Customs offices involved in eTIR is stored.

1.3.3.2. Countries database

A database containing information on all Countries involved in eTIR.

1.3.3.3. HS codes database

To validate the goods part of the declaration, for those declaration that use the HS code, a database containing the HS classification is used.

1.3.3.4. Authorized access database

To ensure that users who submit declarations are authorized TIR operators, the eTIR system connects to the ITDB for validation.

1.3.3.5. eTIR security database

In order to technically restrict access to the eTIR system to those users who have been authorized, the eTIR systems uses a security database.

1.4. IMPLEMENTATION

At its one-hundred-and-fifth session, the Working Party, recognizing that the eTIR Project may be challenging and requiring the input of considerable human and financial input, both at the international and at the national level, agreed that a step-by-step approach seemed the only feasible alternative to achieve any tangible results in the near future (TRANS/WP.30/212, para. 26)

1.5. LANGUAGES AND CHARACTER SETS

The eTIR system will allow for the translation of all coded information in order to ensure the maximum transparency. In order to allow the transmission and display of all languages, the character set used by the eTIR system is Unicode (UFT-16).

In case of textual descriptions, the language of the country where the information has been provided shall be used. Nevertheless, translations in other languages can also be provided and are sometime required.

2. TRANSITIONAL STEPS

2.1. FIRST STEP: GUARANTEE VALIDATION

To be filled when part 1 is approved.

2.2. SECOND STEP: DECLARATIONS & TIR MOVEMENTS

To be filled when part 1 is approved.

2.3. THIRD STEP: RECORDING OF ALL TIR OPERATIONS

To be filled when part 1 is approved.

2.4. FOURTH STEP: FULL COMPUTERIZATION

To be filled when part 1 is approved.

2.5. FOURTH STEP: FUTURE DEVELOPEMENTS

To be filled when part 1 is approved.

C. FINAL CONSIDERATIONS

6. The Expert Group may wish to discuss and, possibly, validate the draft part 1 and request its inclusion into the Reference Model. Furthermore it may request the secretariat to further elaborate part 2 on the step-by-step implementation of the eTIR system.
