The eTIR Reference Model

Group of Experts on the legal aspects of the computerization of the TIR procedure (WP.30/GE.2) – Second session – Geneva
André Sceia / April 2-4, 2015
Rationale for the eTIR project

Transport operator

B2B: Guarantee certificate

B2C: Declaration & guarantee certificate

C2C: Transport & Operations

C2B: Transport & Operations

National Association

International organization

Guarantee Chain

Private

Public

National

International
The eTIR system: a public private partnership

- **Transport Operator**
  - Private
  - C2B
  - B2C

- **Guarantee Chain**
  - Private
  - C2B
  - B2C

- **Customs**
  - Public
  - C2C

- **eTIR international system**
  - Public
Why a centralized system

Decentralized approach (bilateral)

Centralized approach (multilateral)

- Customs
- eTIR international system
- Customs
eTIR main principles

Management of guarantee data by customs
eTIR main principles
Customs to customs data exchange

Customs system of country 1
Push/Query Information Notifications
Push/Query Information Notifications

eTIR international system
Information push and query

Guarantee chain system
eTIR high-level architecture

Customs

UNECE

eTIR

Web Services

TIR ITDB

Web Services

TIR associations

TIR holders

IRU

TIR Customs Portal

Web Services

TIR Trusted Data Exchange

TIR Holder Portal

TIR Association Portal

Trusted Data Exchange

Web Services

UNECE Portal

Web Services

eTIR

Web Services
eTIR project – main activities and results

• Analysed the current TIR process
• Identified present and future requirements
• Analysed and designed the future system
• Divided the current document in messages
  – B2C (e.g. declaration)
  – C2B
  – C2C
• Identified and contributed to the development of the relevant standards
• eTIR Reference Model (775 pages), including activity diagrams, data model and XML schemas (available at etir.unece.org)
eTIR Reference Model - Structure

The eTIR Reference Model follows the UN/CEFACT Modelling Methodology (UMM) and is structured as follows:

• Introduction
• Chapter 1 – Business domain modelling
• Chapter 2 - e-Business requirements
• Chapter 3 - Analysis workflow
• Chapter 4 - Design workflow
• Annexes
Introduction

• Background and mandate
  – Presents the history of the eTIR project and reflects all decisions taken by the relevant bodies.

• Introduction to the eTIR Reference Model
  – Presents the eTIR project phases and workflows, the eTIR Reference Model structure and review status.
Chapter 1
Business domain modelling

• Vision
  – Defines the objectives, the business needs and the scope of the business domain

• TIR procedure domain
  – Describes the dependencies between the eTIR project domain and other systems/procedures used to ensure the proper functioning of the TIR procedure

• TIR Carnet life cycle use cases
  – Describes the actors and the procedures of the whole TIR Carnet life cycle

• Entry classes & high-level class diagram
  – High level description of the TIR Canet data
Chapter 2  
e-Business requirements

• High-level description of the eTIR project
  – Description of the functioning of the eTIR system

• Step-by-step implementation
  – Description of the step-by-step transition from TIR to eTIR

• Use cases analysis
  – Describes the actors and the procedures of the eTIR system (use cases and activity diagrams)

• Class diagram
  – Describes at high level the structure of the data used for eTIR
Chapter 3
Analysis workflow

• Activity analysis
  – Detailed functional description of the sequence of procedures and data flows between the actors/systems involved in eTIR (sequence diagrams) and general description of the fall-back scenarios

• Data analysis
  – Detailed description of the data used in the eTIR system, including a functional description of all messages (class diagrams, message descriptions, code lists, …)
Chapter 4
Design workflow

• Class diagrams
  – Detailed technical description of the objects/classes used in eTIR (TBC)

• Activity
  – Detailed technical description of the eTIR procedures and fall-backs (TBC)
  – Technical implementation of the eTIR messages in XML and UN/EDIFACT, including cross references between the functional message description and the technical implementations.

• System architecture
  – Description of the components and interfaces (web services) (TBC)
Annexes

• Annex 1 : Requirements list
• Annex 2 : Glossary
• Annex 3 : Data elements records (analysis of the data contained in the TIR Carnet and its usage)
• Annex 4 : UML Symbols Glossary (description of the UML symbols)
• Annex 5 : UMM/UML Glossary (description of the terms used in the UMM methodology)
• Annex 6 : eTIR declaration mechanisms
• Annex 7 : Cost-benefit analysis (CBA) summary, assessment of the CBA and recommendations
• Annexes 8 and 9 : Functional and technical fall-backs (TBC)
• Annexes 10 and 11 : Lists of figures and tables
• Annex 12 : References
Annex 6: eTIR declaration mechanisms

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Accompanying document
Vehicle Holder
Holder
Inspection and sealing
eTIR international system
Guarantee chain

Guarantee request
Holder
Advance cargo information
Incl. guarantee reference and itinerary

Customs office of departure
Holder
Advance cargo information reference
Risk Analysis

ITDB
Other Customs along the itinerary
eTIR international system
National information system
Accompanying document
Goods
Declaration reference
Vehicle
Inspection and sealing

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Annex 6: eTIR declaration mechanisms

1. Advance cargo information, including previously accepted declaration(s) + other TIR transport info.

2. Risk analysis

3. eTIR international system

4. ITDB

5. National information system

6. Holder

7. Sealed vehicle

8. Customs office of entry

Holder

Accompanying document

Sealed vehicle

Customs office of entry

National information system

Risk analysis

Advance cargo information, including previously accepted declaration(s) + other TIR transport info.

Customs along the itinerary

ITDB
Annex 6: eTIR declaration mechanisms

Declaration options

- Customs system of the country of departure
- Secured system to system connection (e.g. VPN)
- Third party system (e.g. TIR EPD)
- Authenticated based on private requirements (e.g. user/password)
- eTIR international system
- Holder

- Customs system of the country of departure
- Secured system to system connection (e.g. VPN)
- eTIR international system
- Secure Web service

- Customs system of the country of departure
- Secured system to system connection (e.g. VPN)
- eTIR international system
- Authentication based on national requirements (e.g. electronic signature)

- Customs system of the country of residence of the holder
- Authentication based on national requirements (e.g. electronic signature)

- Customs system of the country of departure
- Secured system to system connection (e.g. VPN)

- Holder
Annex 7: Cost-benefit analysis

Results

Scenario 1

Scenario 2

Net present value (right)
Overall ROI (left)
Annex 7 : Cost-benefit analysis

Assessment

Scope

- Good assumptions (eTIR RM), tech. options
- Simple scenarios
- Missing indirect benefits
- Missing costs for holders and guarantee chain
- Missing “off-the-shelf” technological option
- Labour costs too low for Geneva

Methodology

- Function point analysis
- Detailed cost analysis (incl. risk factors)
- ROI and NPV (5% discount rate)
- CBA based on unit costs
Annex 7: Cost-benefit analysis

Recommendations by GE.1

• The eTIR system should be implemented, including at national level, as soon as the legal provisions would be prepared and ratified, the technical specification completed and a project road map agreed on;

• A potential avenue to explore for the financing of the eTIR international system seems to be through a contributory system per TIR transport/guarantee, similar to the one used for TIRExB;

• The eTIR international system should be hosted at UNICC or UNOG data centres;

• The use of “off-the-shelf” solutions, including open source, should be considered for the development of the eTIR international system.
Thank you

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