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eTIR: Towards Paperless Cross-border Trade

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eTIR: Towards Paperless Cross-border Trade

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Contents

1. Introduction

Various physical and non-physical barriers undermine the potential of cross-border trade in developing countries in Asia and the Pacific. In the region, trade and transport are often challenged, not only by insufficient physical infrastructure, but are also affected by complicated cross-border formalities and procedures and lack of coordination among various stakeholders. In particular, inefficiency and fraudulent activities within customs transit procedures have been crucial challenges that developing countries have faced in order to enhance their competitive positions in global markets (ESCAP, 2014).

In light of today's extremely rapid technological advancement, including the Internet and smart cards, the introduction and promotion of paperless trade measures have become of great interest in both the public and private sectors. These information and communication technologies (ICT) based trade facilitation measures are expected to increase the efficiency of trade procedures while reducing the rate of fraudulent actions among participating parties in cross-border trade activities such as customs clearance, transit, transport, warehousing, guarantee and insurance. Although the advantages of paperless solutions are well recognized, implementation of a paperless transit system could be challenging, especially for developing countries in Asia and the Pacific (ESCAP, 2014).

Given the above background, this study aims to provide a review on the eTIR system, an international paperless transit system[2] which has the objective to secure the exchange of electronic data between national customs systems for the international transit of goods, vehicles and containers, according to the provisions of the TIR Convention. Established in 1975, the TIR Convention simplifies and harmonizes the administrative formalities for international road and containerized multimodal transport. The eTIR system is expected to allow participating customs to manage the data on guarantees issued to authorized transport operators and to ensure the secure exchange of TIR transport-related data between national customs systems. Thus, it is seen as a valuable tool for paperless trade facilitation among all the Contracting Parties of the TIR Convention. ICT based paperless trade through the eTIR system is expected to enhance efficiency and decrease irregularities within cross-border trade, while boosting trade through transport facilitation.

This study presents the characteristics, features and potential benefits of the eTIR system as well as future challenges for all actors regarding its implementation. It is also meant to provide a useful case to the United Nations Economic and Social Commission of Asia and the Pacific (ESCAP) Member States in their efforts to boost trade through cross-border transport facilitation. This study is expected to enhance the understanding of policymakers and legislators on the benefits and requirements of the eTIR system.

This study is structured as follows. Section 2 presents an overview of the TIR Convention, which is a multilateral treaty aimed at simplifying and harmonizing the administrative formalities of international road and containerized multimodal transport and which is the main legal basis of the eTIR system. Section 3 presents the results already achieved in the computerization of certain procedures, in parallel to the paper TIR system. Section 4 describes the eTIR project, its objectives as well as an overview of the eTIR system. Section 5 presents the eTIR pilot projects in Asia and the Pacific. Finally, section 6 concludes with policy recommendations.

Trade and transport are often challenged by insufficient physical infrastructure and complicated cross-border formalities and procedures

2 Paperless transit, which is the essential element of eTIR, refers to a cross-border movement of goods based on electronic documents instead of paper-based ones. Nevertheless, a paperless transit system could also include simplified paper-based documents, when this simplification is a result of electronic information exchange related to them. Thus, the paperless transit system could be understood as a process of optimization of transit facilitation measures by means of available and affordable ICT, rather than an achievement on the total absence of paper documents in transit (ESCAP, 2014).

2. Overview of the TIR Convention

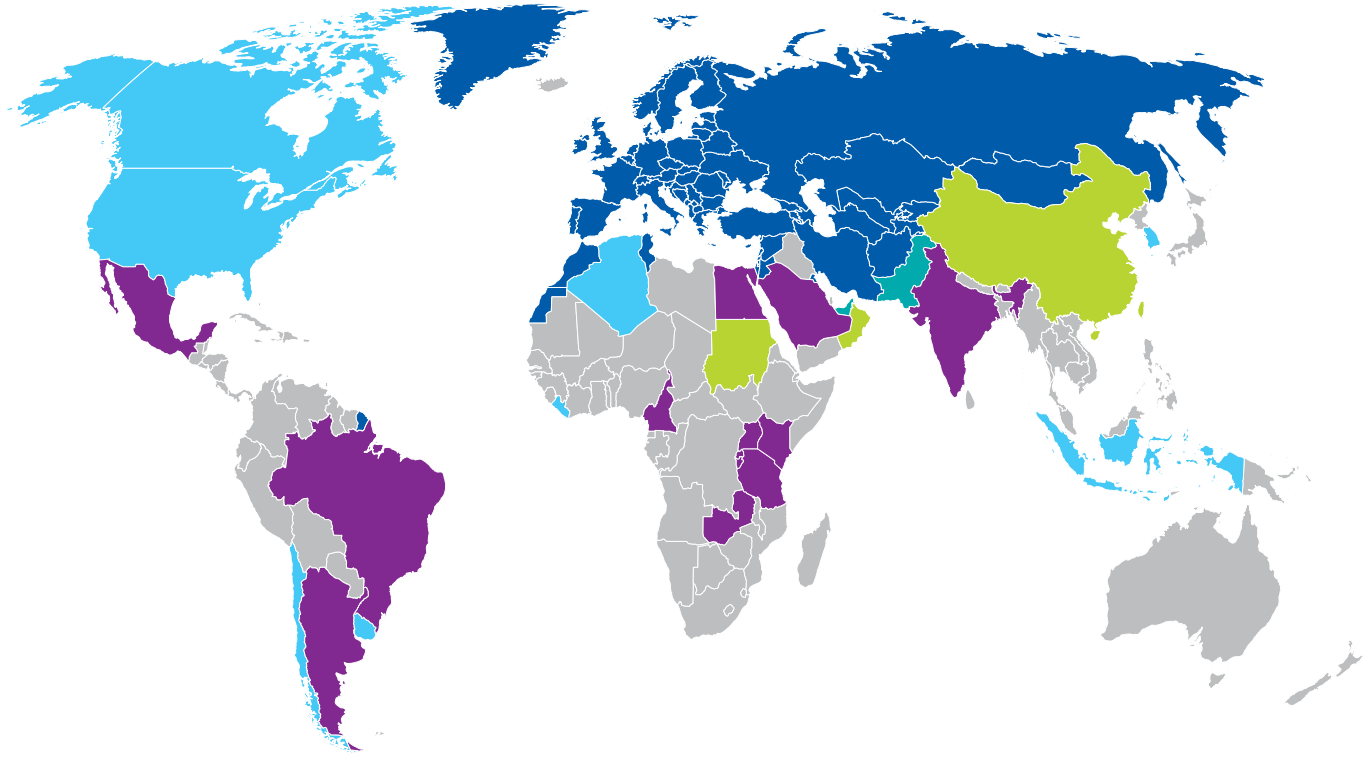
Over several decades, the TIR Convention[3] (1975) which is administered by its Contracting Parties under the auspices of the United Nations Economic Commission for Europe (UNECE), has proved to be one of the most successful and efficient instruments for international transit and transport. To date, it has 69 Contracting Parties. The TIR system or procedure, which is governed by the provisions of the TIR Convention, constitutes a public-private partnership between the Contracting Parties and the international guarantee chain, which is managed by the International Road Transport Union (IRU). Being the only global transit system by design, the TIR system is currently in operation in 58 countries, covering the whole of Europe and extending out to North Africa, the Middle East and Central Asia (UNECE, 2015a) (see Figure 1). Recently, Pakistan became the 69th Contracting Party to the TIR Convention (deposition of instruments of accession on 21 July 2015 and entry into force on 21 January 2016). After the accession of Pakistan, the TIR Convention has become of even greater importance, especially for landlocked Central Asian countries. This step is seen as a great opportunity for boosting regional development and integration, especially along the regional trade corridors through North and Central Asia as well as South and South-West Asia, linking the 10 members of the Economic Cooperation Organization (ECO)[4], which now all have become TIR Contracting Parties (UNECE, 2015a).

The administration and supervision of the TIR Convention is ensured by various international bodies (see Figure 2). The TIR Administrative Committee (AC.2), composed of all Contracting Parties to the Convention, is the highest organ under the Convention. It approves amendments to the Convention and provides all countries, competent authorities and concerned international organizations an opportunity to exchange views on the functioning of the system. The TIR Executive Board (TIRExB) supervises and provides support in the application of the TIR system as well as supervising the international guarantee system. It is composed of 9 members, each from different Contracting Parties, who are elected in their personal capacity. The decisions of TIRExB are executed by the TIR Secretary who is assisted by the TIR secretariat. The TIR Secretary is a member of the UNECE secretariat. The work of the AC.2 is also supported by the UNECE Working Party on Customs Questions affecting Transport (WP.30).

3 The Convention on International Transport of Goods under Cover of TIR Carnet (UNTC, 2015). TIR is the abbreviation for Transports Internationaux Routiers or International Road Transports.

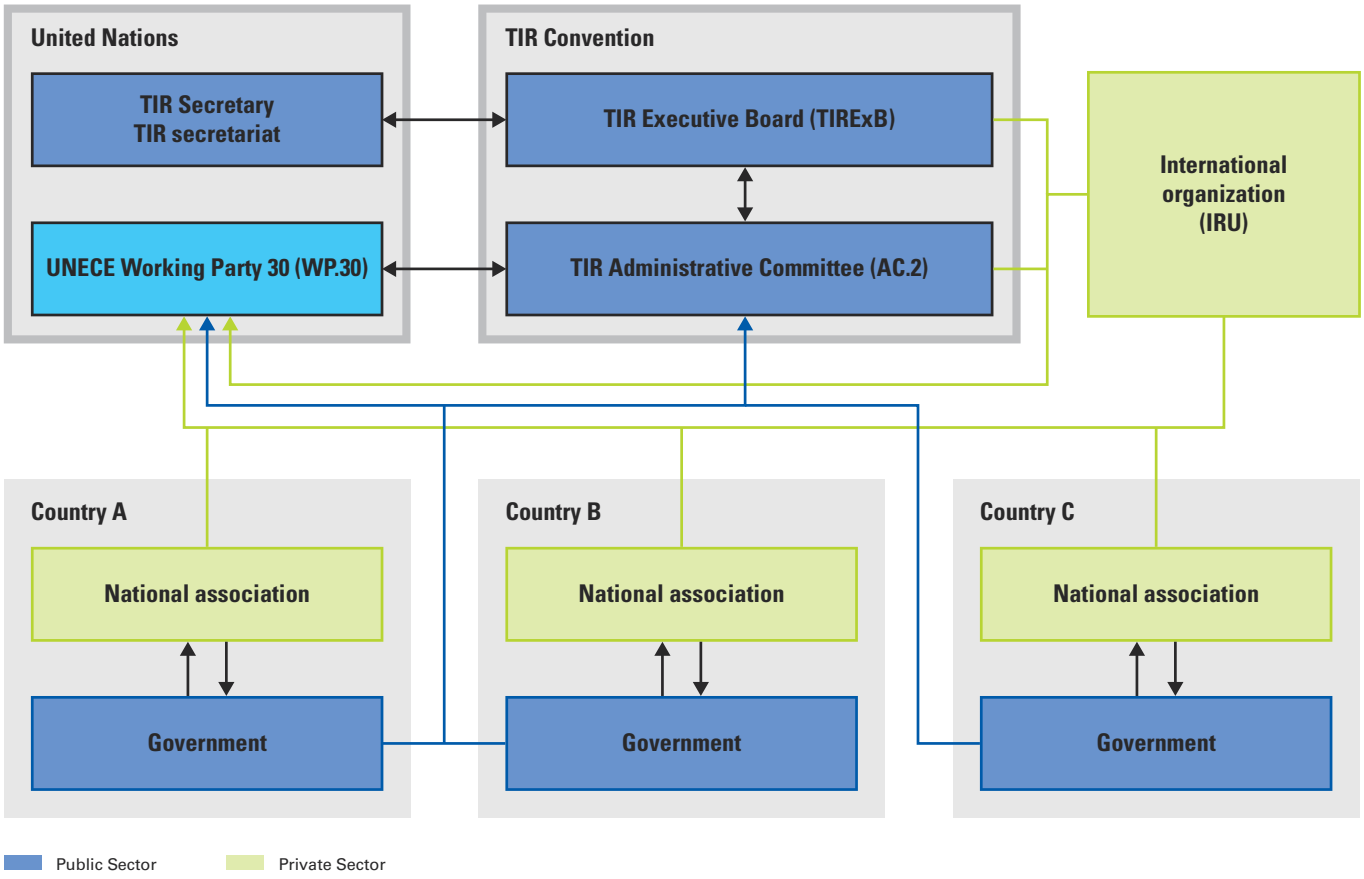
4 ECO member states comprise Afghanistan, Azerbaijan, Iran (Islamic Republic of), Kazakhstan, Kyrgyzstan, Pakistan, Tajikistan, Turkey, Turkmenistan and Uzbekistan.

Figure 1. Geographical Scope of the TIR Convention



Source: IRU – TIR Geographic Scope (http://www.iru.org/en_iru_tir_scope_index)

Figure 2. Administrative structure of the TIR Convention



Participation in WP.30 is open to all Member States of the United Nations and to other interested parties, intergovernmental or non-governmental organizations, such as IRU and national associations. (UNECE, 2013b)

In the context of the international transport of goods, when goods cross the territory of one or more States, the customs authorities in each State traditionally apply national controls and procedures, such as inspection of the load at each national frontier and application of national security measures (e.g. guarantees, bonds or deposits) to mitigate the risk of losing potential duties and taxes (of which goods in transit are exempt from payment in virtue of, inter alia, Article 5 of the GATT). Thereby, the aforementioned measures, repeatedly applied in each country of transit, can lead to considerable expenses, delays and interferences for international transport. The TIR system was established with the purpose of reducing these difficulties experienced by transport operators, whilst providing customs authorities an international system of control, replacing traditional national procedures and, thus, becoming a time and cost-efficient mechanism that effectively protects the revenue of each State through which goods are carried (UNECE, 2015b). Transports[5] carried out according to the TIR procedure allow the international carriage of goods by road vehicles or containers from a customs office(s) of departure to a customs office(s) of destination, through as many countries as necessary. The TIR system is a facilitating mechanism for international trade and transport, since there is no need for intermediate checking of the goods carried or depositing a financial guarantee at each border. As a matter of fact, the TIR system not only covers customs transit by road, but also covers containerized intermodal transport, as long as at least one part of the total transport is made by road. Hence, this makes the TIR system of even greater importance.

The TIR system involves a multitude of actors: Governments, mainly represented by customs administrations, the guarantee chain, composed of national guaranteeing associations and IRU, as well as transport operators, who ultimately benefit from the facilitation provided by the system.

5 The term "TIR transport" means the transport of goods from a customs office of departure to a customs office of destination under a procedure called the "TIR procedure" (TIR Convention, Article 1 (a)) (UNECE, 2013).

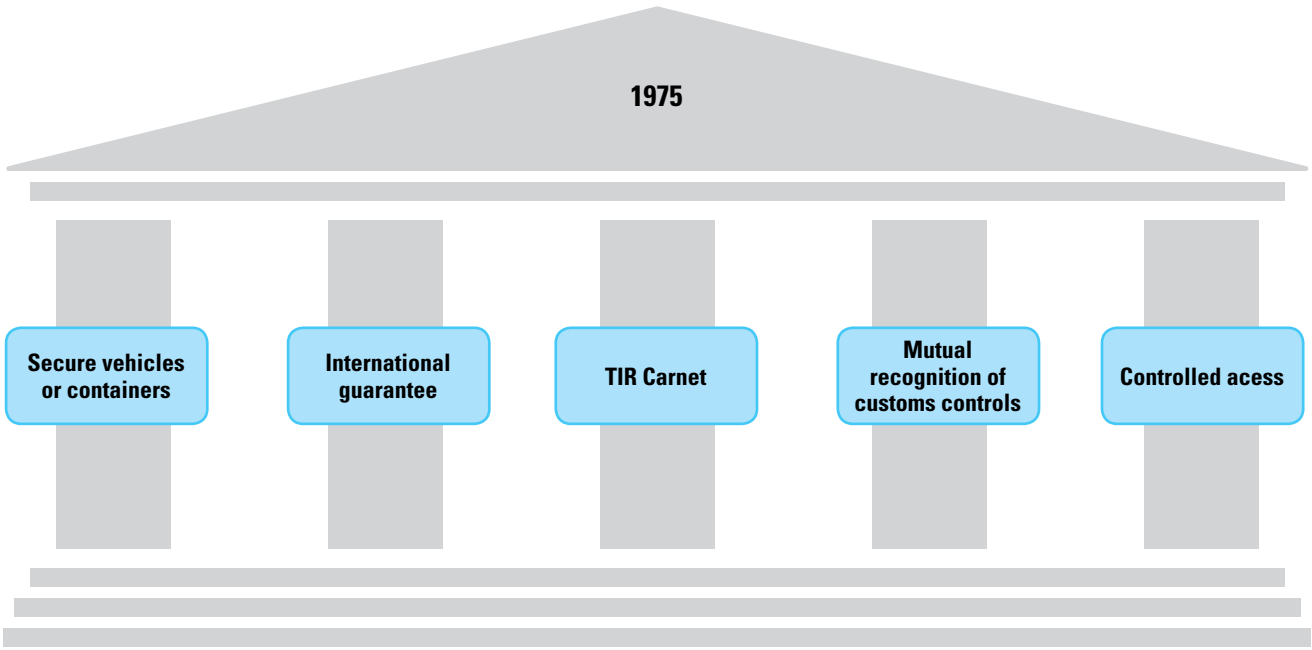
The TIR Convention is based on the five following pillars (see Figure 3):

- Goods should travel in secure vehicles or containers.
- Goods are covered by an internationally valid guarantee. The Convention has established an international guaranteeing chain, which is managed by IRU, a non-governmental organization representing the interests of road transport operators worldwide, and comprised of national guaranteeing associations. The guarantee chain covers duties and taxes at risk for all TIR transports covered by TIR Carnets it has issued (ESCAP, 2007).
- The TIR Carnet (see Annex I) is an international customs document, which is used by transport operators to make a single transit declaration, checked at the customs office of departure and valid for all countries along the route. It also provides the proof of the existence of the guarantee.
- Thus, customs authorities in transit countries can recognize that the inspection was performed at the customs of departure without undertaking additional checks.
- Contracting Parties control the access to the TIR procedure. Internationally, while gathered in AC.2, they authorize IRU to manage the guarantee chain as well as to print TIR Carnets. Nationally, they authorize national associations to issue TIR Carnets and act as guarantors as well as natural and legal persons that utilize TIR Carnets.

The UN TIR Customs Convention is a tried and tested, successful transport and trade facilitation instrument

As a consequence of those five pillars, stakeholders in the TIR system have important roles and responsibilities that have ensured the well-functioning of the TIR system through its many years of existence. Since the Convention is in application, IRU is responsible for the effective organization and functioning of the guaranteeing chain, as well as for printing and distributing TIR Carnets to national guaranteeing associations. On the basis of the provisions of Annex 10 of the TIR Convention, customs authorities are responsible for the transmission to the IRU database (i.e. SafeTIR and Real Time SafeTIR (RTS)) or to the national guaranteeing association of information about the termination of TIR operations at the customs office of destination (IRU, 2015b). National associations issue TIR Carnets and act as guarantors for both national and foreign TIR Carnet holders. They also significantly contribute to the procedure through which governments grant access to the TIR system to transport operators. Finally, TIR Carnet holders are responsible for maintaining records of all journeys where the TIR Carnet is used and have the obligation to keep national associations duly informed of any claim, notification or irregularity that has occurred. The roles and responsibilities of all stakeholders in the TIR system are presented in detail in table 1.

Figure 3. Five pillars of the TIR Convention



Source: Compiled by the authors

Table 1. Roles and responsabilities within the TIR system

International organization (IRU)	• Responsible for the effective organization and functioning of an international guarantee system; • Monitoring and auditing the national associations; • Training; • Printing, storage and distribution of TIR Carnets to national associations; • Claims management.
Governments of the Contracting Parties (usually customs authorities)	• Application of the TIR Convention; • Authorizing the national associations to establish a guarantee agreement with customs; • Authorizing transport operators to use the TIR procedure; • Authorizing the international organization (IRU); • Establishing national procedures for opening and controlling transit under cover of a TIR Carnet; termination and discharge procedures (including risk management procedures and provisions of data to the SafeTIR system); • Facilitating data exchange; compliance with deadlines; obligation to seek payment from the person(s) directly liable.
National issuing and guaranteeing associations	• Application of the TIR Convention; • Assisting Governments in controlling access of transport operators to the TIR system; • Handling, ordering, storage, issuance and return of TIR Carnets; • Electronic tracking of the issue, return and discharge of TIR Carnet movements & online communication to IRU databases; • Applying appropriate risk management measures; • Guaranteeing TIR operations on their national territory for both national and foreign TIR Carnet holders; • Detecting and managing TIR irregularities.
Authorized transport operators (TIR Carnet holder)	• Obtaining authorization from customs authorities; • Depositing of admission guarantee; • Presenting the road vehicle together with goods and required documentation (TIR Carnet, certificate of vehicle approval, etc.) to customs offices of departure, en route and destination; • Maintaining records of all journeys where a TIR Carnet is used; • Applying risk management measures in the operation of TIR transports; • Assisting customs authorities by providing documents to establish the correct termination of TIR Carnets; • Keeping their national association duly informed of any claim, notification or irregularity that has occurred.
TIR Executive Board (TIRExB)	• supervise the centralized printing and distribution of TIR Carnets; • oversee the operation of the international guarantee and insurance system; • coordinate and foster exchange of intelligence among customs; develop and maintain the International TIR Data Base (ITDB), inter alia, for the management by customs administrations and guaranteeing associations of the authorization procedure of TIR Carnet holders

Source: IRU (2015b) and (UNECE, 2013b)

In the case of a TIR transport from a single loading place to a single unloading place involving three countries (i.e. a country of departure, a country of transit and a country of destination), the TIR procedure follows the following steps: a transport operator first requests a TIR Carnet from a national guaranteeing association. Once the TIR Carnet is issued, the TIR Carnet holder fills it in and presents it at the customs office of departure, together with the goods loaded in the vehicle or the container. Before the first TIR operation can start, customs will check the validity of the TIR Carnet, control the goods as well as the vehicle or the container and will finally seal the loading unit if all checks are in order. Then, customs will stamp and sign the manifest on each of the vouchers of the TIR Carnet, including on the vouchers which will be used by transit and destination countries (two vouchers for each country). After filling in, stamping and signing the first counterfoil, the customs office of departure will also take off the first voucher.

At the customs office of exit of the country of departure, the transport operator presents the TIR Carnet and the sealed loading unit. After customs authorities have checked the seals as well as the vehicle or the container and, if no irregularities are found, they fill in, stamp and seal the second counterfoil and remove the second voucher from the TIR Carnet, thus terminating the first TIR operation[6]. The TIR Carnet is then returned to the TIR Carnet holder, who can continue his journey to the country of transit. In countries where the discharge procedure is not computerized,

6 the term "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);

A TIR Carnet is like a visa for the goods. It reduces costs and time in the logistics chain through facilitating border crossings

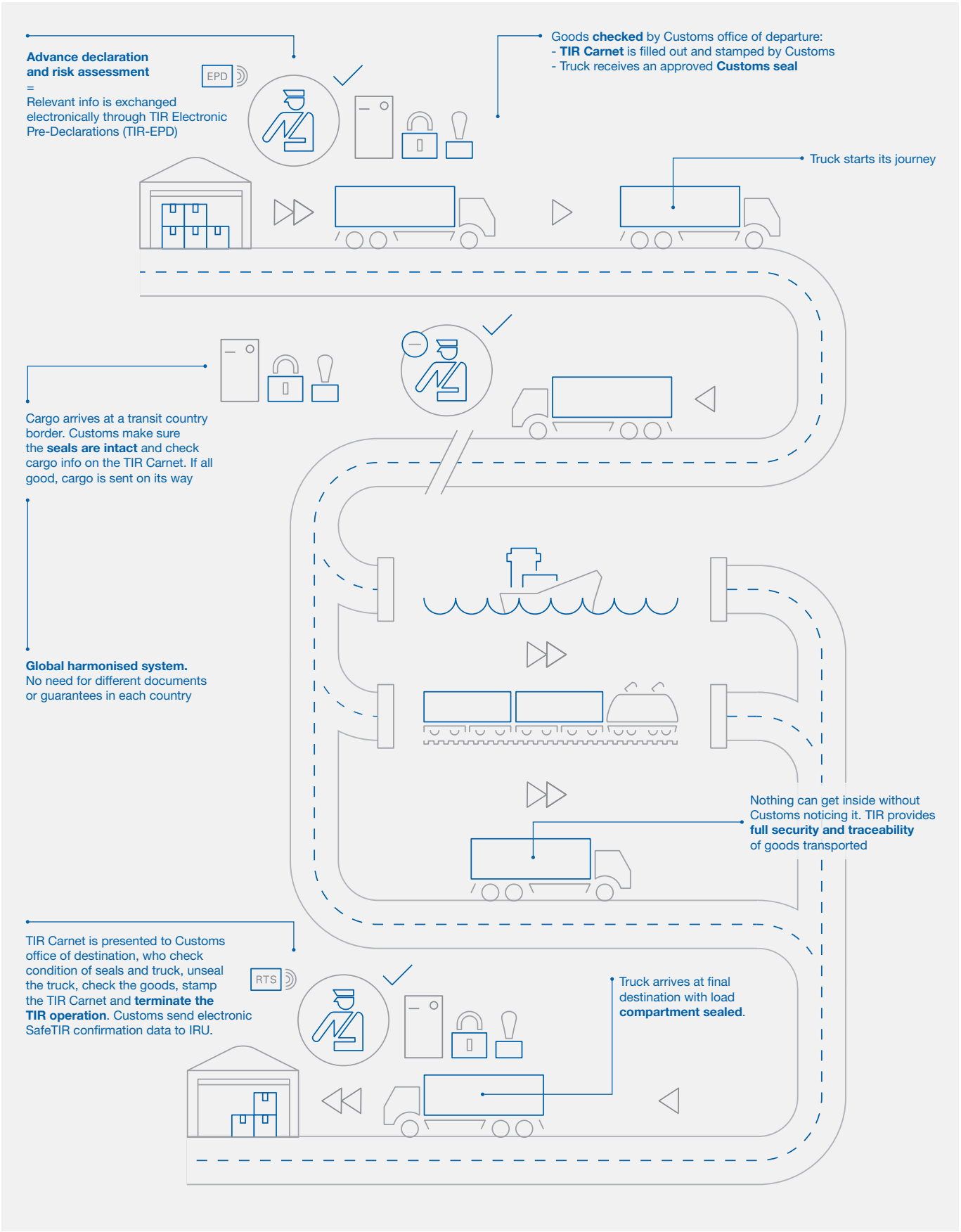
the customs office of exit sends the certificate of termination (a detachable part of voucher number 2) to a central customs office, responsible for discharge procedures or back to the customs office of departure.

At the customs office of entry of the transit country, the transport operator presents the TIR Carnet and the sealed loading unit to the customs authorities. Customs officers check the seals as well as the vehicle or the container and, if everything is in order, they fill in, stamp and seal the third counterfoil and remove the third voucher from the TIR Carnet, thus starting the second TIR operation. After completion, the TIR Carnet is returned to the transport operator and he is allowed to continue his journey to the office of exit of the transit country where the same procedure that took place at the customs of exit of the country of departure will take place, before the TIR Carnet holder is allowed to proceed to the country of destination.

At the customs office of entry of the country of destination, the procedure is identical to the one taking place at the customs office of entry of the country of transit, using counterfoil and voucher number 5. Following this, the transport operator is ready to leave to the customs office of destination.

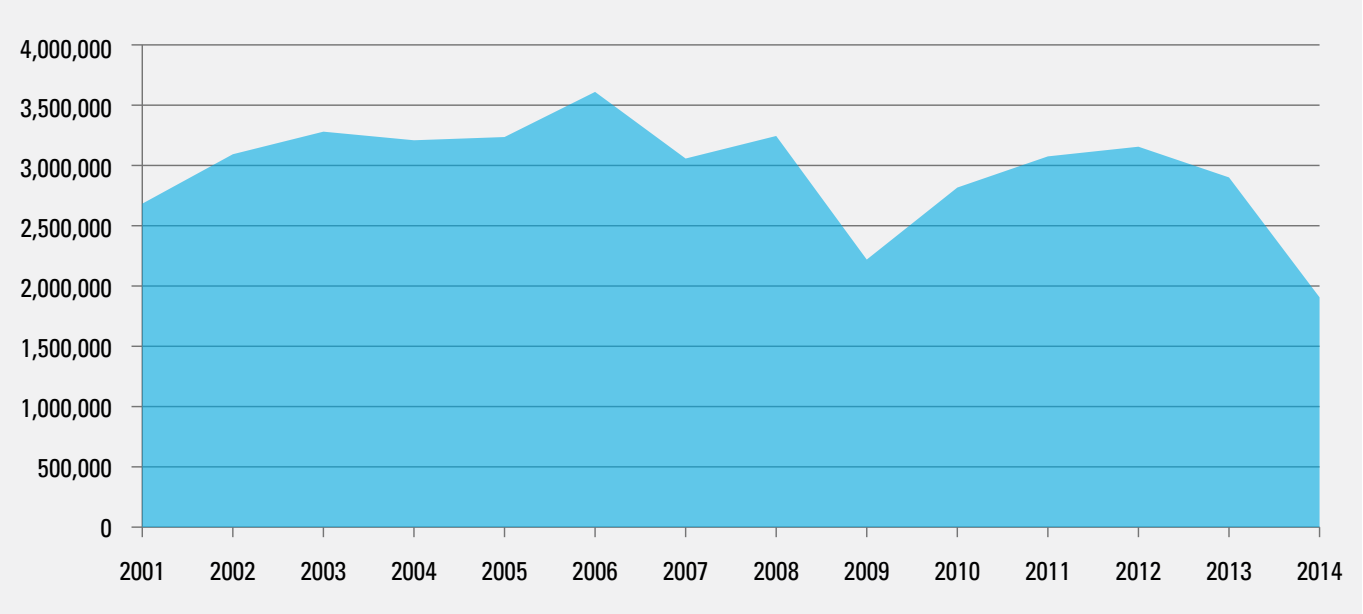
At the customs office of destination, further to the presentation of the TIR Carnet and the sealed loading unit by the transport operator, customs authorities repeat the same controls before removing the seals and filling in, signing and stamping the counterfoil and removing voucher number 6, used for the discharge procedure. Furthermore, in line with the requirements of Annex 10, customs authorities will inform the guarantee chain of the termination of the third TIR operation. The TIR transport is then completed and the TIR Carnet is returned to the transport operator, who will then return the TIR Carnet to the guaranteeing association that issued it. The guaranteeing association, after having undertaken the appropriate controls, will return the TIR Carnet to IRU for further controls, recording and archiving (IRU, 2015). To illustrate the functioning of the TIR procedure, a schematic description is provided in figure 4.

Figure 4. TIR system and procedures



Source: Compiled by the authors based on figure 3 of UNECE (2013)

Figure 5. Total amount of TIR Carnets (2001-2014)

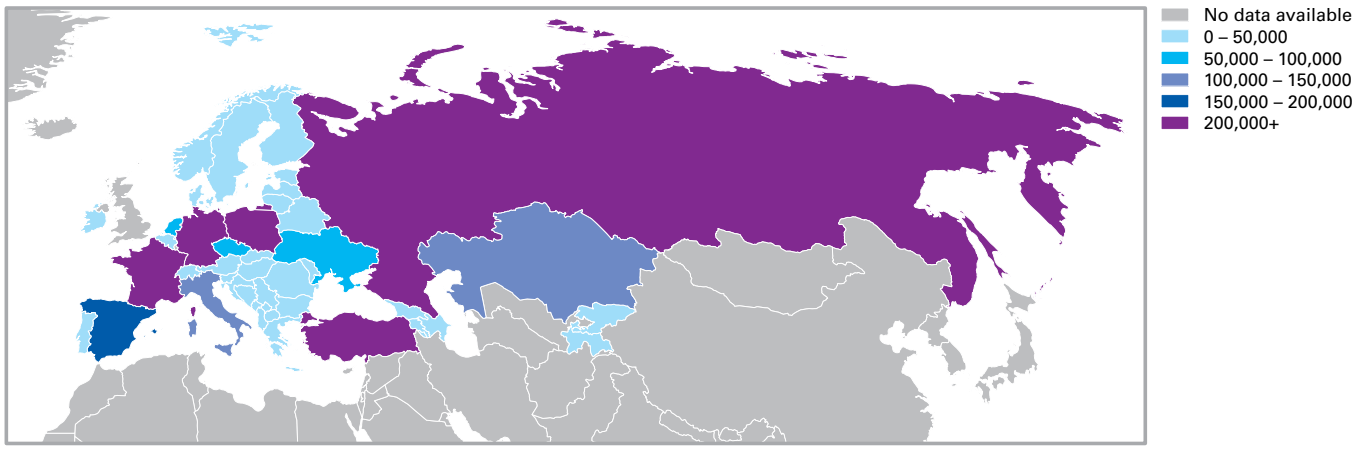


Source: UNECE Transport Statistics Database (http://w3.unece.org/pxweb/database/STAT/40-TRTRANS/02-TRROAD/?lang=1)

The success of the TIR system may also be demonstrated by the number of TIR Carnets distributed and issued every year. Between 2001 and 2014, the 30,000 authorized TIR Carnet holders performed, on average, almost 3 million TIR transports per year (see figure 5), which represents nearly 10,000 transports and over 50,000 border crossings in 58 countries every day (UNECE, 2015a).

Despite the global economic slowdown in the past decade, the demand for TIR Carnets has remained strong, in particular in Central Asia. The number of TIR Carnets issued in Azerbaijan, the Islamic Repubic of Iran, Kazakhstan, Kyrgyzstan, Tajikistan and Turkmenistan has almost doubled from 2005 to 2010. The TIR procedure is of increasing significance for the countries in the subregion to facilitate growing trade, in particular for those countries that are landlocked. More recently, due to administrative measures taken by the Russian Federation as of 2013, the number of TIR Carnets used has reduced significantly. However, the Russian Federation has remained one of the principal users of TIR Carnets, being the major trading route between Central Asia and Europe (see figure 6) (Eurasia Business Platform, 2015). Before 2013, annually, Russian transport companies conducted some 700,000 TIR transport operations with other TIR Contracting Parties and the Russian Federation was the final destination of approximately 1,500,000 TIR transports (UNECE, 2013a).

Figure 6. Carriage of Goods by Road (million, tonne-km), 2012



Source: UNECE Transport Statistics Database (http://w3.unece.org/PXWeb/en/DataMap?IndicatorCode=51)

3. Progress towards the computerization of the TIR system

In the past decades, the globalization process of supply chains and the rapid development of ICT have been important drivers of change in the landscape of international trade and transport. Currently, across the world, the computerization of national customs and transport procedures is underway, which mainly focuses on the promotion of paperless trade across borders. As the use of ICT is becoming a crucial component of trade and transport facilitation, various electronic solutions have been developed and used around the globe (see Annex II).

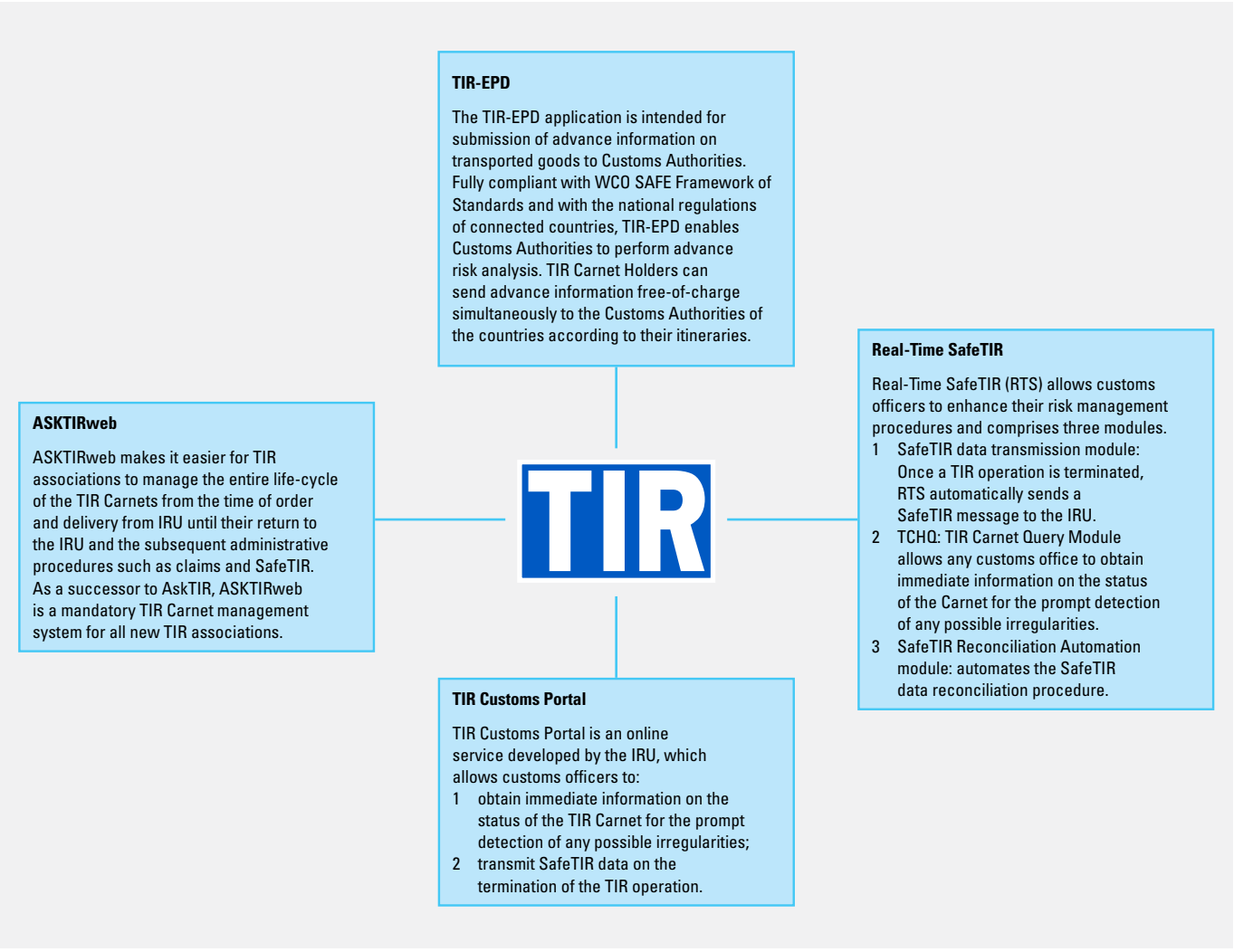
In this context, with the progress in technology and worldwide wireless communication systems, the use of the paper TIR Carnet is increasingly becoming archaic, in particular when it comes to linking it to the electronic procedures applied by national customs administrations. Furthermore, limited customs manpower and increasingly sophisticated methods of customs fraud and smuggling have caused the TIR system to increase productivity and control by adapting the latest technologies and electronic data processing (UNECE, 2013b).

With this in mind, and pending the introduction of a fully computerized eTIR system, all actors of the TIR system have made concrete steps toward the computerization of the TIR procedure.

The guarantee chain

In the beginning of the 1990s, substantial increases in trade volumes and in the number of road hauliers performing TIR transports led to higher risk of fraud perpetrated by organized crime. To tackle this issue, AC.2 adopted a recommendation in 1995 that set out an electronic control system for TIR Carnets (IRU, 2015). Since then, the TIR system has been gradually computerized as IRU has developed various ICT applications in order to further facilitate and bring additional security to the TIR procedure. Three web portals have been set up for (a) TIR Carnet holders, (b) customs authorities and (c) national guaranteeing associations. Figure 7 graphically presents the TIR system in operation, including the currently available ICT applications developed by IRU.

Figure 7. IRU applications used to improve the paper-based TIR system



Source: Compiled by the authors

The TIR Electronic Pre-Declaration (TIR-EPD) system is a web-based application, set up by IRU for TIR Carnet holders, aimed at facilitating the submission of electronic pre-arrival information, including safety and security information required by various national legislations. The TIR-EPD system is connected to numerous customs ICT systems and allows TIR Carnet holders to submit, at no additional cost, electronic pre-declarations to customs authorities in different countries. The provision of advance information allows customs to perform pre-arrival risk analysis and take decisions on required control (IRU, 2015c).

In order to provide access to information on the status of TIR Carnets (e.g. in circulation, terminated, returned to IRU, or invalid) to customs and national associations, IRU has also developed the TIR Customs Utility for TIR Transaction Entry – Worldwide Information System for Enquiry (TIR Cute-Wise). Furthermore, the web-based TIR Customs Utility for TIR Transaction Entry (TIR Cute Web) application was developed with the objective of facilitating the manual entry and transmission of TIR termination data by customs authorities and national guaranteeing associations. National guaranteeing associations also have access to a web-based application, AskTIRweb, which allows the management of TIR Carnet holders and facilitates the management of the life-cycle of TIR Carnets, from the moment they are ordered by the associations and delivery by IRU to their final return to IRU for archiving after having been used for TIR transports.

Computerization of the TIR system has further increased the security in the logistics chain.

Additional security has been brought through the establishment of Real Time SafeTIR (RTS), an electronic central system that allows, inter alia, customs authorities to transmit electronically information on termination of TIR operations to IRU. Once the information is received by IRU, the data is made available electronically to the actors of the TIR system (customs authorities as well as issuing and guaranteeing associations) for the verification of the status and validity of each TIR Carnet at any moment in real time (IRU, 2015b).

Customs administrations

For various decades, customs administrations worldwide have increasingly been using ICT to improve and speed up customs procedures. In most Contracting Parties to the TIR Convention, the national or regional management of TIR operations makes no exception to that trend. Furthermore, various Contracting Parties have also started requesting the advance submission of TIR Carnet data in electronic form to further facilitate the management of TIR operations in their national ICT systems (OSCE and UNECE, 2012).

Since 2005, the European community and common transit systems have been managed with the New Computerized Transit System (NCTS), providing some of the most advanced paperless transit solutions implemented regionally. NCTS is currently used by all member states of the European Union (EU), European Free Trade Association countries (i.e. Iceland, Norway, Liechtenstein and Switzerland), Turkey, the former Yugoslav Republic of Macedonia and (since 1 February 2016) Serbia to monitor the movement of goods among those countries undertaken under both transit regimes (Irish Tax and Customs, 2015). Furthermore, the EU legislation and the European Commission, in the framework of the "E-Customs" project, requested the electronic processing of TIR Carnet data with NCTS for all TIR operations carried out within the EU. Since 1 January 2009, transport companies have been requested to submit pre-arrival information, including for TIR transports. Transporters not complying with this obligation upon arrival in the territory of the EU are stopped at the EU external border and are requested to seek the services of a customs brokers who will assist in the submission of the required information (European Commission, 2015).

Some other TIR Contracting Parties, e.g. Moldova, Afghanistan and Georgia, use the Automated System for Customs Data (ASYCUDA) to manage TIR operations nationally. This computerized customs system is used in over 90 countries, territories and regions (Asycuda, 2015). For example, Moldova, the first country to implement the ASYCUDA World system, fully computerized its customs offices nationwide in 2006. Further to the management of TIR operations, their ASYCUDA system is also connected with the IRU applications (TIR EPD and Real-Time SafeTIR). Hence, Moldova's ASYCUDA system receives electronic information regarding TIR Carnets that will arrive in the country prior to the arrival of the truck at the border, automatically checks the validity of TIR Carnets and automatically generates and transmits SafeTIR messages to the IRU central database (Asycuda, 2015).

TIRExB

Contracting parties to the TIR Convention have also mandated TIRExB to provide a number of electronic repositories and applications. The ITDB and its web application allowing the input of and access to data (ITDBonline+) allow customs administrations and national associations to collaboratively manage the authorization process for TIR Carnet holders. The Register on customs stamps and sealing devices is a secure web application that allows customs administrations to exchange information about the customs stamps and seals in use. Furthermore, additional applications are still being developed under the responsibility of TIRExB, such as a database on customs offices approved for TIR and an application to manage the approval of vehicles to be used for TIR transports.

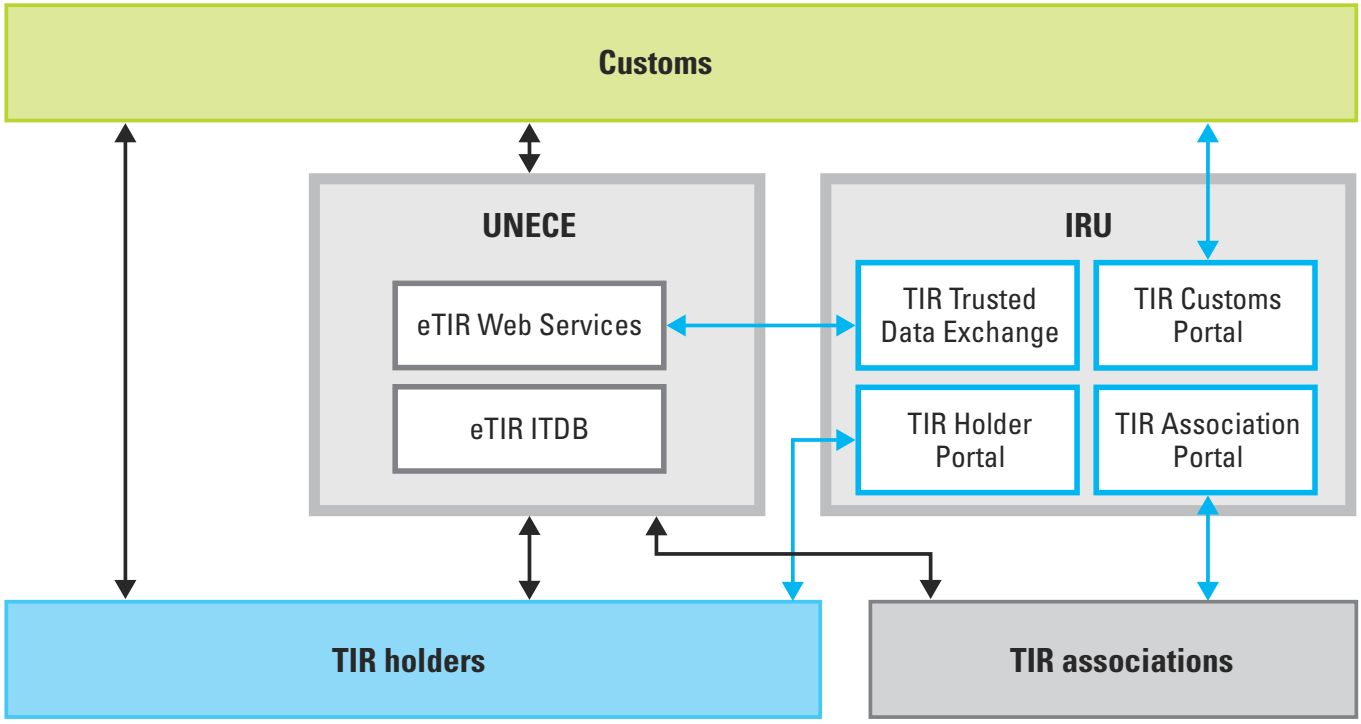
4. The eTIR System

In 2003, the Contracting Parties to the TIR Convention started the so-called eTIR project, a project aimed at the computerization of all procedures throughout the lifecycle of a TIR Carnet, i.e. from printing to archiving as well as use in the course of a TIR transport (UNNExT, 2014). The paper TIR Carnet will be replaced by exchanges of electronic messages via a central data exchange platform, the so-called eTIR international system, from which all actors (i.e. customs authorities, transport operators and the guaranteeing chain) will benefit. Further to ensuring the secure exchange of data between national customs systems, the eTIR international system will also allow the management by customs of data on guarantees. The establishment of the complete eTIR system will also require efforts from customs authorities and the guarantee chain to amend and connect their ITC systems with the eTIR international system.

The final objective of the eTIR project is to improve the efficiency and quality of the TIR procedures, reduce the risk of fraud and, thus, improve security in cross-border trade and transport procedures by providing systematic availability of advanced information that would allow customs authorities to conduct risk assessments prior to the arrival of cargos.

Figure 8 presents graphically the eTIR system in operation as described hereafter. Before starting an eTIR transport, the transport operator first requests an electronic guarantee from the guarantee chain. If the request is granted, the holder receives a guarantee reference number from the guarantee chain. Then, the guarantee chain registers the issued guarantee in the eTIR international system. At that stage, the transport operator can send an advance cargo information (ACI) message to the customs office of departure, using a national declaration mechanism, or an international declaration mechanism, such as IRU's TIR-EPD, including the reference number of the electronic guarantee he received from the guarantee chain. As a response to the ACI message, the transport operator receives an ACI reference number. On the basis of the ACI received, customs authorities perform the required risk assessment procedures prior to the arrival of the transport at the customs office of departure. When the holder presents the goods, the vehicle or the container together with the references to the ACI and to the guarantee at the customs office of departure, the ACI is used to launch the electronic transit declaration in the customs information system. According to the results of the risk assessment already performed, if deemed necessary, customs authorities will examine the goods and inspect the vehicles or the container and seal the loading unit if no irregularity has been detected, and start the first TIR operation. Customs will then send the TIR transport and TIR operation data to the eTIR international system (UNECE, 2014b). The eTIR international system will forward the declaration data to all customs involved in the TIR transport, who will use it as ACI for their part of the TIR transport. When the transport operator reaches the customs office of exit, further to any checks deemed

Figure 8. eTIR system in operation



Source: Compiled by the authors

necessary, the customs officers will terminate the TIR operation in the customs information system, which will then automatically forward the termination and discharge information to the eTIR international system. All customs offices of entry and exit en route will undertake similar procedures and send the relevant messages to the eTIR international system. At the customs office of destination, after customs authorities terminate the last TIR operation, the customs information system will send the relevant termination and discharge messages. (OSCE and UNECE, 2012). Annex III also provides the overview of the high-level architecture of the eTIR system.

TIR is today fully computerized, ready to be used.

The eTIR system offers benefits to all actors involved in the existing TIR system, such as the systematic availability of advanced information that would allow stakeholders to conduct risk assessments prior to the arrival of cargo. In addition, the exchange of customs information in a secure environment prevents false submission of customs declarations. In other words, the eTIR system brings additional security and risk management opportunities, thus reducing the risk of fraud. Furthermore, increased cooperation under the eTIR system will significantly reduce the administrative burden for all actors and maximize the benefits of integrated supply chain management. Finally, the provision of advanced cargo information and the exchange of information in real time will speed up the international movement of goods across borders (UNECE, 2014b).

As the eTIR system requires the involvement of all actors of the TIR system from different countries and continents, the complexity of its operations will be significant and will require the harmonization of requirements at both national and international levels. In particular, customs administrations will

have to ensure interoperability between their national customs systems and the eTIR international system. Furthermore, international standards developed in the course of the eTIR project will have to be respected while developing customs declaration mechanisms and customs administrations will also have to provide specific training to customs officers. The centralized registration of guarantees requires developments by IRU while national guaranteeing associations will be involved in training transport companies on the purchase and use of electronic guarantees as well as the electronic submission of declarations.

Further efforts are required to deal with the legal and financial aspects related to the implementation of the eTIR system. (UNECE, 2014b). In this regard, WP.30 decided to create a Group of Experts on the Legal Aspects of Computerization of the TIR Procedure (GE.2) to deal with those issues. According to the mandate contained in its work plan and Terms of Reference[7], GE.2 will finalize its work by the end of 2017.

7 http://www.unece.org/fileadmin/DAM/trans/bcf/wp30/documents/ECE-TRANS-WP30-2014-14e.pdf

5. eTIR pilot projects in the ESCAP region

TIR Contracting parties in the ESCAP region have been actively involved in eTIR pilot projects, which are essential milestones towards the establishment of the fully fledged eTIR system. The following two pilot projects involve ESCAP countries: (1) the UNECE-IRU eTIR pilot between the Islamic Republic of Iran and Turkey; (2) and the eTIR pilot project between Georgia and Turkey.

First, the UNECE-IRU eTIR pilot project mainly aims at effectively allowing a rapid and minimum cost launch of paperless TIR procedures between two pilot countries (Islamic Republic of Iran and Turkey), constituting a first step towards implementing the eTIR system worldwide (UNNExT, 2014). The two countries have already computerized their domestic TIR operations and were connected to the Real Time SafeTIR and TIR-EPD systems of IRU (UNNExT, 2014) allowing real-time exchange of data on declarations and the status of the guarantee. In the framework of this pilot project, UNECE, IRU, customs administrations and guaranteeing associations in both countries have agreed to use of their existing ICT systems to exchange TIR data in real time. In addition, as part of the pilot project, a lightweight version of the eTIR international system was developed to allow the reception and storage of all TIR data exchanged between customs authorities, TIR Carnet holders, guaranteeing associations and IRU, thus ensuring the reliability of the TIR data exchanged.

At the end of 2015 a first series of four eTIR transports were successfully carried out between the two countries, in both directions. The pilot project transport operators were transporting real goods covered by an "electronic guarantee", customs officers applied a specific eTIR procedure, and all eTIR messages were successfully exchanged between the actors who could follow the real-time progress of the transports on their screen. More eTIR transports are underway, which means that all actors are satisfied with this pioneering system. This pilot project has demonstrated that by simply interconnecting the existing systems used by the various actors, customs systems, transport operators, IRU and UNECE, TIR can be computerized with minor changes, and very rapidly.

To date, this is the only eTIR pilot project that has resulted in concrete transports, interlinking all TIR actors with all necessary messages.

Second, the eTIR pilot project between Georgia and Turkey started in 2015 and was officially launched by the signature of a Protocol on electronic data exchange in the framework of a joint eTIR pilot project by the Minister of Finance of Georgia and the Minister of Customs and Trade of the Republic of Turkey (UNECE, 2015a).

The aim of this project is to further facilitate legitimate trade and transport between both countries through an extended use of ICT and to increase cooperation between the customs authorities concerned, by means of customs-to-customs electronic exchange of TIR-related information (UNECE, 2012) and the automatic verification of the authorization of TIR Carnet holders through the ITDB. The project allows customs authorities to exchange information and, thus, carry out risk analysis prior to the arrival of goods traveling under the cover of TIR Carnets to, from and through both countries. Moreover, it aims to demonstrate the practical feasibility of fully computerized TIR transit procedures, by means of eTIR messages, defined in the eTIR Reference Model (UNECE, 2014b), and possibly identify some areas for further improvement (UNECE, 2015c).

Although customs administrations of ESCAP Member States have developed electronic information systems, they still generally rely on the paper TIR Carnet to process TIR operations. The above mentioned pilot projects will provide useful lessons for those countries which aim at improving the efficiency of their cross-border trade.

eTIR pilot projects have been a huge success

6. Conclusion and policy recommendations

The implementation of a paperless transit system, such as the eTIR system, provides direct economic benefits to the countries involved. As described above, increased efficiency and effectiveness as well as improvement of security of transit operations are the main advantages of the eTIR system. The implementation of the eTIR system will bring further security of transit operations and reduce vulnerability to fraudulent actions and corruption, which will contribute to the protection from revenue losses and security and safety threats and, thus, improve the business environment. With streamlined transit procedures, transport cost could be significantly reduced, ensuring substantial savings in the framework of international trade (ESCAP, 2014).

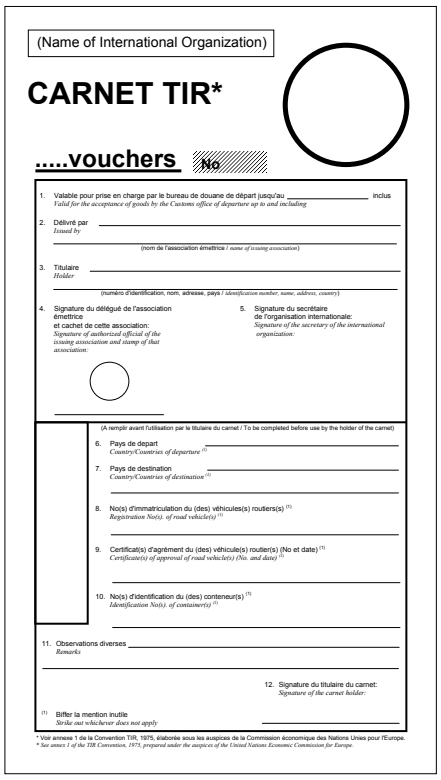
In this respect, political engagement, mutual trust and a high level of cooperation among all the Contracting Parties of the TIR Convention are crucial for the realization of the eTIR system. TIR operating countries within Asia and the Pacific have generally stated their willingness to actively participate in the implementation of the eTIR system in order to improve their transit systems. In order to ensure full readiness for the ESCAP member States to benefit from the eTIR system, the following recommendations require significant attention by the competent authorities:

eTIR is ready to be used

- Firm political support for actual reforms of transit systems, where needed, including the accession to the TIR Convention, in line with ESCAP resolution 48/11;
- Close regional cooperation and an agreement on the use of the eTIR system to improve transit with other TIR Contracting Parties;
- Finally, an eTIR pilot project could be implemented at subregional level to gain from the operational experience of TIR operating countries in other subregions. Considering that all ECO member states are all TIR Contracting Parties, the ECO subregion would provide ideal candidates for such a pilot project.

Annex I

Pages of a traditional paper TIR Carnet



(Name of International Organization)

CARNET TIR*

.....vouchers No

1. Valable pour prise en charge par le bureau de douane de départ jusqu'au _____ inclus
Valid for the acceptance of goods by the Customs office of departure up to and including

2. Délivré par _____
Issued by
(nom de l'association émettrice / *name of issuing association*)

3. Titulaire _____
Holder
(numéro d'identification, nom, adresse, pays / *identification number, name, address, country*)

4. Signature du délégué de l'association émettrice et cachet de cette association:
Signature of authorized official of the issuing association and stamp of that association:

5. Signature du secrétaire de l'organisation internationale:
Signature of the secretary of the international organization:

(A remplir avant l'utilisation par le titulaire du carnet / To be completed before use by the holder of the carnet)

6. Pays de depart
Country/Countries of departure (1)

7. Pays de destination
Country/Countries of destination (1)

8. No(s) d'immatriculation du (des) véhicules(s) routiers(s) (1)
Registration No(s). of road vehicle(s) (1)

9. Certificat(s) d'agrément du (des) véhicule(s) routier(s) (No et date) (1)
Certificate(s) of approval of road vehicle(s) (No. and date) (1)

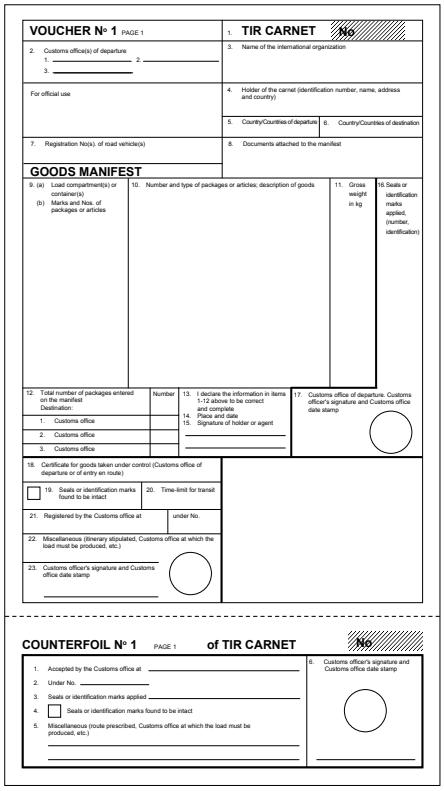
10. No(s) d'identification du (des) conteneur(s) (1)
Identification No(s). of container(s) (1)

11. Observations diverses
Remarks

12. Signature du titulaire du carnet:
Signature of the carnet holder:

(1) Biffer la mention inutile
Strike out whichever does not apply

* Voir annexe 1 de la Convention TIR, 1975, élaborée sous les auspices de la Commission économique des Nations Unies pour l'Europe.
* *See annex 1 of the TIR Convention, 1975, prepared under the auspices of the United Nations Economic Commission for Europe.*



VOUCHER N° 1 PAGE 1 — 1. **TIR CARNET** No

2. Customs office(s) of departure 1. _____ 2. _____ 3. _____
3. Name of the international organization
For official use
4. Holder of the carnet (identification number, name, address and country)
5. Country/Countries of departure 6. Country/Countries of destination
7. Registration No(s). of road vehicle(s)
8. Documents attached to the manifest

GOODS MANIFEST

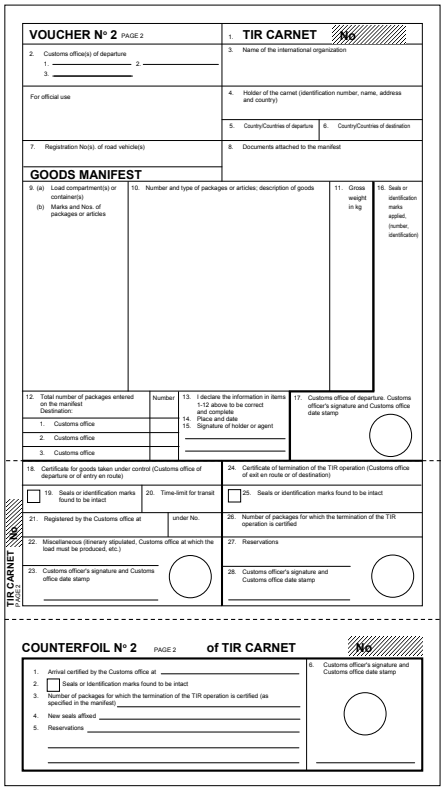
9. (a) Load compartment(s) or container(s) (b) Marks and Nos. of packages or articles
10. Number and type of packages or articles; description of goods
11. Gross weight in kg
16. Seals or identification marks applied, (number, identification)

12. Total number of packages entered on the manifest Destination: 1. Customs office 2. Customs office 3. Customs office — Number
13. I declare the information in items 1-12 above to be correct and complete
14. Place and date
15. Signature of holder or agent
17. Customs office of departure. Customs officer's signature and Customs office date stamp

18. Certificate for goods taken under control (Customs office of departure or of entry en route)
19. ☐ Seals or identification marks found to be intact
20. Time-limit for transit
21. Registered by the Customs office at — under No.
22. Miscellaneous (itinerary stipulated, Customs office at which the load must be produced, etc.)
23. Customs officer's signature and Customs office date stamp

COUNTERFOIL N° 1 PAGE 1 **of TIR CARNET** No

1. Accepted by the Customs office at _____
2. Under No. _____
3. Seals or identification marks applied _____
4. ☐ Seals or identification marks found to be intact
5. Miscellaneous (route prescribed, Customs office at which the load must be produced, etc.) _____
6. Customs officer's signature and Customs office date stamp



VOUCHER N° 2 PAGE 2 — 1. **TIR CARNET** No

2. Customs office(s) of departure 1. _____ 2. _____ 3. _____
3. Name of the international organization
For official use
4. Holder of the carnet (identification number, name, address and country)
5. Country/Countries of departure 6. Country/Countries of destination
7. Registration No(s). of road vehicle(s)
8. Documents attached to the manifest

GOODS MANIFEST

9. (a) Load compartment(s) or container(s) (b) Marks and Nos. of packages or articles
10. Number and type of packages or articles; description of goods
11. Gross weight in kg
16. Seals or identification marks applied, (number, identification)

12. Total number of packages entered on the manifest Destination: 1. Customs office 2. Customs office 3. Customs office — Number
13. I declare the information in items 1-12 above to be correct and complete
14. Place and date
15. Signature of holder or agent
17. Customs office of departure. Customs officer's signature and Customs office date stamp

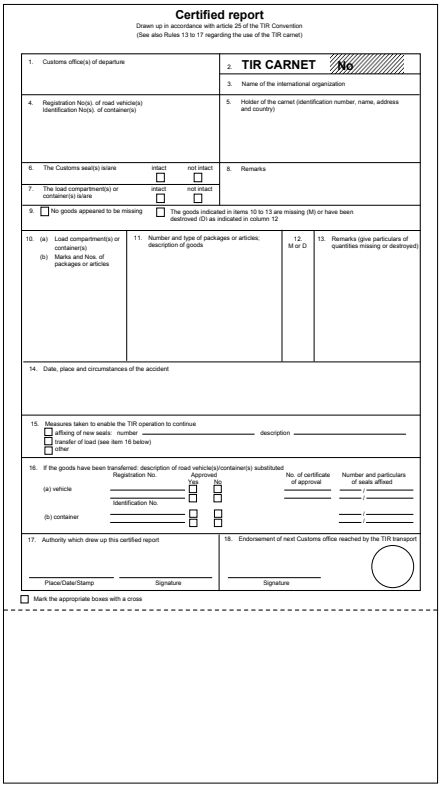
18. Certificate for goods taken under control (Customs office of departure or of entry en route)
19. ☐ Seals or identification marks found to be intact
20. Time-limit for transit
21. Registered by the Customs office at — under No.
22. Miscellaneous (itinerary stipulated, Customs office at which the load must be produced, etc.)
23. Customs officer's signature and Customs office date stamp

24. Certificate of termination of the TIR operation (Customs office of exit en route or of destination)
25. ☐ Seals or identification marks found to be intact
26. Number of packages for which the termination of the TIR operation is certified
27. Reservations
28. Customs officer's signature and Customs office date stamp

TIR CARNET No PAGE 2

COUNTERFOIL N° 2 PAGE 2 **of TIR CARNET** No

1. Arrival certified by the Customs office at _____
2. ☐ Seals or identification marks found to be intact
3. Number of packages for which the termination of the TIR operation is certified (as specified in the manifest) _____
4. New seals affixed _____
5. Reservations _____
6. Customs officer's signature and Customs office date stamp



Certified report
Drawn up in accordance with article 25 of the TIR Convention
(See also Rules 13 to 17 regarding the use of the TIR carnet)

1. Customs office(s) of departure
2. **TIR CARNET** No
3. Name of the international organization
4. Registration No(s). of road vehicle(s) Identification No(s). of container(s)
5. Holder of the carnet (identification number, name, address and country)
6. The Customs seal(s) is/are intact ☐ not intact ☐
7. The load compartment(s) or container(s) is/are intact ☐ not intact ☐
8. Remarks
9. ☐ No goods appeared to be missing ☐ The goods indicated in items 10 to 13 are missing (M) or have been destroyed (D) as indicated in column 12
10. (a) Load compartment(s) or container(s) (b) Marks and Nos. of packages or articles
11. Number and type of packages or articles; description of goods
12. M or D
13. Remarks (give particulars of quantities missing or destroyed)
14. Date, place and circumstances of the accident
15. Measures taken to enable the TIR operation to continue affixing of new seals: number _____ description _____ transfer of load (see item 16 below) other
16. If the goods have been transferred: description of road vehicle(s)/container(s) substituted
Registration No. Approved Yes ☐ No ☐ No. of certificate of approval Number and particulars of seals affixed
(a) vehicle _____ Identification No. _____
(b) container _____
17. Authority which drew up this certified report — Place/Date/Stamp — Signature
18. Endorsement of next Customs office reached by the TIR transport — Signature
☐ Mark the appropriate boxes with a cross

Source: UN Treaty Collection, 2015 (https://treaties.un.org/doc/Publication/UNTS/Volume%201434/volume-1434-A-16510-English.pdf).

References

Asycuda (2015). *ASYCUDA*. Available at: http://www.asycuda.org/french/dispcountry.asp?name=Moldova.

Eurasia Business Platform (2015). *Implementation Plan for the TIR Convention in Central Asia to Facilitate Trade and to Support Economic Growth*, IRU. Available at: http://www.centrasiabiz.org/files/2010/03/TIR-in-Central-Asia.docx.

European Commission (2015). *Common and Community transit - European commission*. Available at: http://ec.europa.eu/taxation_customs/customs/procedural_aspects/transit/common_community/index_en.htm.

ESCAP (2007). T*owards a harmonized legal regime on transport facilitation in the ESCAP region*. New York: United Nations. Available at: http://www.unescap.org/resources/towards-harmonized-legal-regime-transport-facilitation-escap-region-guidelines.

_____ (2014). *Draft Report of Study on Paperless Transit. Bangkok*: United Nations Economic and Social Commission for Asia and the Pacific, Transport Division. Unpublished.

Grosjean, P. (2012). *B2C-C2B TIR Computerization latest progress*, Presentation to GE. 1, Prague, 19 April 2012. Available at: http://www.unece.org/fileadmin/DAM/trans/bcf/adhoc/conc_tech/documents/Grosjean190412.pdf.

Harris, I., Wang, Y. and Wang, H. (2015). *ICT in multimodal transport and technological trends: Unleashing potential for the future*, International Journal of Production Economics, Volume 159, January 2015, pages 88-103.

IRU (2015a). *IRU - TIR Geographic Scope*. Available at: http://www.iru.org/en_iru_tir_scope_index.

_____ (2015b). *IRU – Roles and Responsibilities*. Available at: https://www.iru.org/en_iru_tir_roles.

_____ (2015c). *IRU TIR Electronic Pre-Declaration (TIR-EPD) System*. Available at: https://www.iru.org/cms-filesystem-action/tir/en_TIR-EPD-Leaflet.pdf.

OSCE and UNECE (2012). *Handbook of Best Practices at Border Crossings – A Trade and Transport Facilitation Perspective*.

Irish Tax and Customs (2015). *NCTS Transit*. Available at: http://www.revenue.ie/en/customs/businesses/ncts.html.

Smith, G. and Hale, J. (2010). *Shipping Containers and the Future Internet of Things*. Available at: http://www.currentintelligence.net/columns/2010/9/2/shipping-containers-and-the-future-internet-of-things.html.

UNECE (2012). *Strengthening the capacities of developing countries and countries with economies in transition to facilitate legitimate border crossing, regional cooperation and integration*, Project implemented in partnership with customs administrations. Project document. 6 December 2012. Available at: http://www.unece.org/fileadmin/DAM/trans/doc/themes/UNDAC2C/UNECE_BCF_C2C_Electronic_exchange_project__FINAL.pdf

_____ (2013a). *TIR Handbook: Customs Convention on the International Transport of Goods under Cover of TIR Carnets (TIR Convention, 1975)*, Tenth Revised Edition. Geneva: United Nations Economic Commission for Europe. Available at: http://www.unece.org/tir/tir-hb.html.

_____ (2013b). *UNECE continues to be worried about the functioning of the TIR Convention in Russia*, Press Release, 15 August 2013. Available at: http://www.unece.org/?id=33457.

_____ (2014a). *Gap Analysis of Current Legal and Technical Framework for Electronic C2C Exchange of Transit Information between Georgia and Neighboring Countries*, Informal document UNDA1213AA/No. 2. Available at: http://www.unece.org/fileadmin/DAM/trans/doc/themes/UNDAC2C/UNDA1213AA-02e14.pdf

_____ (2014b). *eTIR Reference Model Version 4.1 a* Available at: http://www.unece.org/fileadmin/DAM/trans/bcf/wp30/documents/ECE-TRANS-WP30-2011-4r1e.pdf.

UNECE and IRU (2014). *eTIR Joint Pilot Overview for customs*, Version 1.04, 6 June 2014.

UNECE (2015a). *History - Transport - UNECE*. Available at: http://www.unece.org/tir/system/history/tir-history.html.

_____ (2015b). *UNECE and IRU sign MoU on the Computerization of the TIR procedure (eTIR)*, Press Release, 27 March 2015.

_____ (2015c). *Georgia and Turkey kick-start eTIR pilot project*. Available at: http://www.unece.org/index.php?id=39116.

_____ (2016). *Georgia and Turkey create digital link with eTIR*, 29 January 2016. Available at: http://www.unece.org/info/media/news/transport/2016/georgia-and-turkey-create-digital-link-with-etir/doc.html

UNNExT (2014). *Towards an Enabling Paperless Trade and Transport Environment: Towards Electronic TIR Customs Transit System (eTIR)*, Brief No. 12, September 2014. Available at: http://unnext.unescap.org/pub/brief12.pdf.

UNTC (2015). *UNTC*. Available at: https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XI-A-16&chapter=11&lang=en.

Wang, Y. and Potter, A. (2007). T*he application of real time tracking technologies in freight transport*. In the Proceedings of the Third International IEEE Conference on Signal-image Technologies and Internet-based Systems, Shanghai.

Weber, T. (2010). *Cloud computing for business goes mainstream*. Available at http://www.bbc.co.uk/news/10097450.

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