Economic Commission for Europe
Executive Committee
Centre for Trade Facilitation and Electronic Business

Twenty-fifth session
Geneva, 8-9 April 2019
Item 7 (f) of the provisional agenda

Recommendations and standards:
Support to capacity building and technical cooperation

Draft Training Material on streamlining formalities and documentary procedures connected with importation, exportation and transit*

Material submitted by the Secretariat

Summary

This training material was prepared in the framework of the UNDA project “Evidence-based trade facilitation measures for economies in transition.” It aims to group together and explain the recommendations and standards available through the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT). This material concentrates on the streamlining of formalities and documentary procedures connected with importation, exportation and transit.

Document ECE/TRADE/C/CEFACT/2019/20 is submitted by the Secretariat to the twenty-fifth session of the Plenary for information.

*Annex is reproduced as received.
1. In recent years, international trade has grown very rapidly mainly due to the progressive reduction in trade barriers and transportation costs, as well as due to advancements in information and communication technology. The increase in trade means that more goods cross borders and have to comply with customs formalities and documentary requirements. This often puts pressure on national administrative and customs agencies trying to manage the increased traffic without additional financial or human resources. At the same time, businesses have become more aware of the costs involved in taking goods across borders, such as waiting time.

2. Trade facilitation has been addressing these issues for several decades. This manual intends to provide an overview of available strategies and tools to simplify and streamline formalities and documentary procedures. The idea behind this is to identify the redundant and duplicative information through a Business Process Analysis and to subsequently apply data harmonization and standardization tools and techniques to simplify and eventually eliminate these formalities.


4. The manual consists of six sessions targeting policymakers involved in policy formulation and decision making, project managers and government experts involved in policy implementation, and representatives from the private sector for them to gain a deeper understanding of trade facilitation and, in particular, simplification and streamlining of documentary procedures.

5. The UNECE hopes that this training manual will intensify the efforts to implement the Trade Facilitation Agreement and reduce cumbersome bureaucratic documentary procedures before borders, at borders and in transit. It will therefore bring benefits to governments through increased revenue collection and fraud control, to businesses through increased competitiveness and to consumers through lower prices.

7. The training material is presented annexed to this Plenary document in the format which it is intended to be used.
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INTRODUCTION

In recent years, international trade has grown rapidly mainly due to the progressive reduction in trade barriers and transportation costs, as well as advancements in information and communication technology. The increase in trade means that more goods cross borders and must comply with customs formalities and documentary requirements. This often puts pressure on national administrative and customs agencies trying to manage the increased traffic without additional financial or human resources. At the same time, businesses have become more aware of the costs involved in taking goods across borders such as waiting time.

Trade facilitation has been addressing these issues for several decades. This manual intends to provide an overview of available strategies and tools to simplify and streamline formalities and documentary procedures. The idea behind this is to identify the redundant and duplicative information through a Business Process Analysis and to subsequently apply data harmonization and standardization tools and techniques to simplify, and eventually eliminate, these formalities.

Drafted by the United Nations Economic Commission for Europe (UNECE) Trade Facilitation Section, this training manual considers the World Trade Organization Trade Facilitation Agreement (WTO TFA) and various Business Process Analyses conducted in collaboration with the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) and the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP).

This manual targets policymakers involved in policy formulation and decision-making, project managers and government experts involved in policy implementation, and representatives from the private sector. The goal is to assist them in gaining a deeper understanding of trade facilitation and, in particular, simplification and streamlining of documentary procedures.

We hope that this training manual will intensify efforts to implement the Trade Facilitation Agreement and reduce cumbersome bureaucratic documentary procedures before borders, at borders and in transit. It will bring benefits to governments through increased revenue collection and fraud control, to businesses through increased competitiveness, and to consumers through lower prices.
SECTION 1
STREAMLINING FORMALITIES AND DOCUMENTARY PROCEDURES

This Section will (i) discuss what trade facilitation is; (ii) introduce Article 10.1 of the Trade Facilitation Agreement, the definitions of “formalities” and “documentary requirements” and their objectives; (iii) provide an overview of the UN/CEFACT experience in this area; and (iv) introduce Business Process Analysis and the role of lead agency and team in the process of simplification and streamlining of formalities and documentary requirements.

1.1 Definition of Trade Facilitation

Despite significant improvements in the reduction of tariff barriers, transportation costs and continual advances in communication and information technology, cross-border trade remains very costly for businesses. These costs are largely due to “red tape”—cumbersome regulatory administrative procedures; unnecessary border formalities and documentation requirements; and non-transparent administrative fees. The challenges posed by excessive “red tape” appear at three different stages: before the border, at the border and in transit.

The cost of moving goods across borders is now as important as tariffs in determining the cost of landed goods. This final cost to traders complying with regulatory procedures—which includes the necessary time and delays in border processing—leads to increased costs for imports and exports. This is the result of duplicative and costly administrative procedures which traders face when moving goods across borders. Moreover, these high costs often impede countries’ in their ability to integrate into the global value economy through the global value chains. This can ultimately marginalize or exclude them—not only restricting their own development but also slowing their expansion in the world of trade. According to various studies, streamlining, speeding up and coordinating trade procedures can significantly reduce trade costs—opening up global value chains to more countries and driving the expansion of world trade. Therefore, trade facilitation will generate substantial economic gains by lowering trade costs, simplifying trade procedures, reducing delays at the border and improving delivery.

Different definitions of trade facilitation have been developed by international organizations and contributors to academic publications. Table 1.1 below provides a non-exhaustive list of some of these definitions.

### Table 1.1 Definitions of trade facilitation

<table>
<thead>
<tr>
<th>Institution/Source</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia-Pacific Economic Cooperation (APEC).</td>
<td>Trade facilitation refers to the simplification and rationalization of customs and other administrative procedures that hinder, delay or increase the cost of moving goods across international borders.</td>
</tr>
<tr>
<td>European Commission</td>
<td>Trade facilitation can be defined as the simplification and harmonization of international trade procedures including import and export procedures. Procedures in this context largely refer to the activities (practices and formalities) involved in collecting, presenting, communicating and processing the data required for movement of goods in international trade.</td>
</tr>
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Trade facilitation refers to policies and measures aimed at easing trade costs by improving efficiency at each stage of the international trade chain. Trade facilitation seeks to establish a transparent and predictable environment for cross-border trade transactions based on simple, standardized customs procedures and practices, documentation requirements, cargo and transit operations, and trade and transport arrangements.

Source: WTO World Trade Report 2015. Available at: https://www.wto.org/english/res_e/publications_e/wtr15_e.htm

The UNECE and UN/CEFACT define trade facilitation as simplification, standardization and harmonization of procedures and associated information flows required to move goods from seller to buyer and to make payment. The three parts are defined as follows:

- **Simplification** – the process of eliminating all unnecessary elements and duplication of formalities, processes and procedures. It should be based on an analysis of the existing or current practices, the “as-is” situation.

- **Harmonization** is defined as alignment of national procedures, operations and documents with international conventions, standards and practices. It can come from implementing the same standards as partner countries, either as part of a regional integration process or as a result of business decisions.

- **Standardization** – the process of developing internationally agreed formats for practices and procedures, documents and information. Standards are then used to align and, eventually, harmonize practices and methods.

This definition implies that both the movement of goods and the information associated with these flows are important in an international supply chain. In addition, it includes all the agencies (e.g. government authorities, commercial entities) and all the stakeholders involved in the process.²

The aim of facilitating trade is not simply to expand trade but also to focus on the broader goal of sustainable and inclusive economic growth (see Figure 1.1). The expectation is that economic growth becomes a catalyst for poverty reduction by creating more jobs and income opportunities. Precisely quantifying the contribution of trade and export expansion to poverty reduction is difficult and has been the subject of academic and public debate; nevertheless, numerous countries have demonstrated that a vibrant export sector and affordable access to imports can contribute to economic growth and poverty reduction.³ The anticipated gains from implementation of the TFA also include an increase in revenue collection and reduced incidence of corruption for developing and least developed counties (LDCs) as a result of reduced delays at the border and increased volume of goods passing through customs. Moreover, due to shorter

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delivery times and greater predictability of deliverables, countries will have more chances to participate in global value chains.4

**Figure 1.1. How trade facilitation can contribute to reaching development goals**

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5 World Trade Organization Singapore Ministerial Declaration, document WT/MIN(96)/DEC.
(Fees and Formalities Connected with Importation and Exportation) and X (Publication and Administration of Trade Regulations) of the 1994 General Agreement on Tariffs and Trade (GATT) and identify the trade facilitation needs and priorities of members, in particular, developing and least-developed countries”.

In particular, Article VIII—the core GATT Article on trade facilitation—is rather broad in scope, including “fees, charges, formalities and requirements imposed by governments in relation to importation and exportation”. The provisions of the Article apply not only to

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6 World Trade Organization DOHA Ministerial Declaration, document WT/MIN(01)/DEC/1.

7 World Trade Organization, General Agreement on Tariffs and Trade 1994. Available at: https://www.wto.org/english/docs_e/legal_e/06-gatt_e.htm

8 1. (a) All fees and charges of whatever character (other than import and export duties and other than taxes within the purview of Article III) imposed by contracting parties on or in connexion with importation or exportation shall be limited in amount to the approximate cost of services rendered and shall not represent an indirect protection to domestic products or a taxation of imports or exports for fiscal purposes.

   (b) The contracting parties recognize the need for reducing the number and diversity of fees and charges referred to in sub-paragraph (a).

   (c) The contracting parties also recognize the need for minimizing the incidence and complexity of import and export formalities and for decreasing and simplifying import and export documentation requirements.

2. A contracting party shall, upon request by another contracting party or by the CONTRACTING PARTIES, review the operation of its laws and regulations in the light of the provisions of this Article.

3. No contracting party shall impose substantial penalties for minor breaches of customs regulations or procedural requirements. In particular, no penalty in respect of any omission or mistake in customs documentation which is easily rectifiable and obviously made without fraudulent intent or gross negligence shall be greater than necessary to serve merely as a warning.

4. The provisions of this Article shall extend to fees, charges, formalities and requirements imposed by governmental authorities in connexion with importation and exportation, including those relating to:

   (a) consular transactions, such as consular invoices and certificates;

   (b) quantitative restrictions;

   (c) licensing;

   (d) exchange control;

   (e) statistical services;

   (f) documents, documentation and certification;

   (g) analysis and inspection; and

   (h) quarantine, sanitation and fumigation.

Interpretative Note Ad Article VIII from Annex I states:
procedures, but also to requirements applied by governments to trade transactions and deals with exports and imports. However, the GATT Article VIII barely “recognizes the need for reducing the incidence and complexity of import and export formalities to the minimum”. It neither requires any such reduction nor does it indicate how to achieve it. Likewise, it “recognized the need for reducing the number and diversity of fees and charges” but again does not create any commitment to do so.

In 2004, the WTO members adopted a negotiating mandate for trade facilitation which stipulated that the TFA would improve and clarify three existing GATT articles (see above) and include provisions on customs cooperation “with a view to further expedite the movement, release and clearance of goods, including goods in transit.” The negotiations were formally launched in July 2004. It took 13 years before the TFA finally entered into force with two thirds of all WTO members completing their respective domestic ratification procedures and depositing a valid acceptance instrument.

The TFA has three main objectives:

- Expedite the movement, release and clearance of goods, including goods in transit. This objective aims to reduce the amount of burdensome “red-tape” associated with regulatory compliance.
- Improve cooperation between customs, and between customs and other authorities. This objective aims to improve domestic cooperation between customs and other relevant authorities in each member State, and to improve cooperation on customs compliance among WTO members.
- Enhance technical assistance and build capacity for the implementation of the TFA. This objective recognizes that some member States will not be able to implement the Agreement without technical assistance and capacity building activities. The importance of this objective is highlighted by the inclusion in the Agreement that a member’s obligation to implement the Agreement is directly linked to their capacity to do so.9

The Agreement has 36 “trade facilitating” provisions. The unique feature of this Agreement is that any developing or LDC can adapt its own implementation plan to fit its needs. Some provisions can be implemented immediately, and others will require capacity building and a longer transition period.

1. While Article VIII does not cover the use of multiple rates of exchange as such, paragraphs 1 and 4 condemn the use of exchange taxes or fees as a device for implementing multiple currency practices; if, however, a contracting party is using multiple currency exchange fees for balance of payments reasons with the approval of the International Monetary Fund, the provisions of paragraph 9 (a) of Article XV fully safeguard its position.

2. It would be consistent with paragraph 1 if, on the importation of products from the territory of a contracting party into the territory of another contracting party, the production of certificates of origin should only be required to the extent that is strictly indispensable.

9 World Trade Organization, World Trade Report 2015. Available at: https://www.wto.org/english/res_e/publications_e/wtr15_e.htm
Article 10 of the TFA (on formalities connected with import, export and transit of goods) contains provisions for minimizing formalities and simplifying documentation requirements, which build on UN/CEFACT Recommendation No. 1. It also contains provisions on single window, which expand on UN/CEFACT Recommendations No. 33, 34, 35 and 36. Many recommendations refer to the standardization and simplification of particular trade and transport forms (e.g. Recommendation No. 6 on Aligned Invoice Layout Key for International Trade) and the use of international codes and standards, which define the completion of the boxes in these documents. Almost half of the UN/CEFACT Recommendations cover codes used in document and data exchange in international trade. The functions of National Committees on Trade Facilitation (as defined in TFA Article 23.2) are described in detail in UN/CEFACT Recommendation No. 4. A key function of these Committees is the analysis of formalities and documentary procedures; the discussion of problems among various stakeholders; and the development of solutions, including concrete proposals to government agencies and project teams on automation of documents and documentary and data exchange procedures. Therefore, UNECE and UN/CEFACT have a wide range of key Recommendations, standards and tools to help implement the provisions of this article.

Article 10.1 (Box 1.1) on formalities and documentation requirements provides for a periodic review by WTO members of formalities and documentation requirements with the goal of simplifying or reducing them. Customs must apply uniform documentation requirements and uniform release and clearance procedures. Documentation requirements or formalities should be as fast and efficient as possible, and they should not be adopted if a less trade-restrictive solution is available. These requirements should also be eliminated or modified if no longer necessary.

Box 1.1. TFA Article 10.1

ARTICLE 10.1: FORMALITIES CONNECTED WITH IMPORTATION, EXPORTATION AND TRANSIT
1 Formalities and Documentation Requirements
1.1 With a view to minimizing the incidence and complexity of import, export, and transit formalities and to decreasing and simplifying import, export, and transit documentation requirements and taking into account the legitimate policy objectives and other factors such as changed circumstances, relevant new information, business practices, availability of techniques and technology, international best practices, and inputs from interested parties, each Member shall review such formalities and documentation requirements and, based on the results of the review, ensure, as appropriate, that such formalities and documentation requirements are:
(a) adopted and/or applied with a view to a rapid release and clearance of goods, particularly perishable goods;
(b) adopted and/or applied in a manner that aims at reducing the time and cost of compliance for traders and operators;
(c) the least trade restrictive measure chosen where two or more alternative measures are reasonably available for fulfilling the policy objective or objectives in question; and
(d) not maintained, including parts thereof, if no longer required.
1.2 The Committee shall develop procedures for the sharing by Members of relevant information and best practices, as appropriate.

Source: WTO TFA. Available at https://www.wto.org/english/tratop_e/tradfa_e/tradfa_e.htm.

In addition, it should be noted that the nature of obligations for the WTO members and scope of the provisions in this Article vary. The WTO members have binding ("shall") obligations with respect to the review of formalities, minimization of incidence/complexity of operations and
decrease and simplification of documentation requirements, even if there are no obligations regarding the details of the revision requirements or the frequency of such reviews. Other provisions in this Article of the TFA are “best endeavour” (containing words like “encouraged”, “as appropriate”, “to the extent practicable” etc.). These are measures that are recommended for implementation. For instance, trade formalities and documentation should aim to reduce time/cost for traders and become less restrictive.

1.3 “Formalities” and “documentary requirements”

The term “trade-related formalities” in Article 10.1 of the TFA is used with respect to (i) documents, (ii) automation, and (iii) procedures. Formalities related to documents include, inter alia, simplification of trade documents and harmonization in accordance with international standards; formalities with respect to automation incorporating electronic exchange of data, use of risk management, and automated border procedures; and formalities related to procedures including streamlining of border controls, single submission (single window), post-clearance audits, and authorized economic operators.\(^\text{10}\)

In the context of trade facilitation, formalities can be defined as regulatory administrative procedures and related legal provisions on controls of cross-border import, export and transit activities. These include provisions prescribed by laws, rules, regulations or instructions issued by the regulatory administrative authorities of States and Customs territories, which cover procedures of official controls of cross-border trade and the granting of clearance, licences, permits; prohibitions and restrictions; as well as methods of verification and analysis. The simplification of formalities refers to the freeing of international commerce from the burden of unnecessary, excessive or arbitrary customs or other similar formalities.

“Documentary procedures” encompass all activities ranging from the ordering of goods, physical transfer of goods, regulatory procedures and payment for goods along the supply chain. These activities are traditionally carried out through the handling of paper and electronic documents. Documentary procedures include the procedures for obtaining forms by economic operators, filling them in (including box completion guidelines), filing and approving them and receiving the decisions of the relevant regulatory authorities.

1.4 Objectives of streamlining “formalities” and “documentary procedures”

Streamlining formalities and documentary procedures entails a regular review of domestic and cross-border trade documents. This review should investigate whether (i) the regulatory and official requirements and the business needs of the trading community are fully considered in an open, transparent and inclusive way; (ii) all the data requested is justified by a regulation or a specific business need (the legislative framework should also be reviewed regularly to correspond to actual business practices); (iii) the information requested is still pertinent and up-to-date; and (iv) the data requested cannot be inferred from any other sources.

The review of all the documents used in domestic and international trade should be conducted regularly. For ease of conducting this review, the documents should be divided into specific functional groups, for instance, Commercial, Transport, Financial (including international payments) and Official. The suggested divisions are indicative and not exhaustive.

A schedule or calendar for the document groups should be agreed by an oversight or supervisory committee to ensure consistency of methodology and outputs from each group. This approach will make the review programme manageable, efficient and effective. In addition, it will reduce the time and burden on participants of the individual review groups. Regular review and update of documents will enable timely alignment to international standards and promote consistency, uniformity and efficiency in international trade.

Government and all governmental agencies will benefit from the elimination of redundant data, documents and a duplication of information. These advantages will enable the authorities to enhance risk management techniques and more effectively deploy scarce resources for combating illegal trade. The overall improvement in official controls will promote traders’ compliance and secure government revenues.

Likewise, the benefits of simplified, consistent and predictable information requirements will be extended to the business community. It will make it easier for them to meet legal, regulatory and administrative requirements as well as reduce time, effort and financial resources necessary to gather, collate and submit data to meet official obligations. To realize and enhance the proven and potential benefits, businesses must participate in any governmental activities to simplify and later standardize data for official purposes. Equally, the private sector must actively engage in the consultation process with the authorities to ensure they understand the commercial realities and business drivers in a trade transaction.

1.5 Introduction to the UNECE and UN/CEFACT experience with data simplification.

The United Nations Economic Commission for Europe (UNECE) is one of the five regional commissions under the administrative direction of the United Nations headquarters. It reports to the United Nations Economic and Social Council (ECOSOC)—one of the six principal organs of the United Nations, responsible for coordinating the economic, social and related work of the United Nations specialized agencies and their functional and regional commissions.

As early as 1961, the UNECE founded the Working Party on Facilitation of International Trade Procedures (WP.4) with the goal of facilitating international trade and transport by promoting the rationalization of trade procedures and the effective use of electronic or other automatic data processing and transportation for this purpose. Several decades later, in 1996, the UNECE established the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) as a subsidiary intergovernmental body of the UNECE, mandated to achieve improved worldwide coordination and cooperation in trade facilitation mechanisms, other commercial and governmental business processes and electronic business standards. UN/CEFACT develops global trade facilitation and electronic business recommendations, standards and guidelines to bring simple, transparent and effective processes to global businesses and enhance the efficient and automated exchange of information.11

The technical work to develop UN/CEFACT standards and recommendations is done by over 500 volunteer experts from both the public and private sectors, forming a public-private

partnership in support of trade facilitation and electronic business. They participate as independent volunteer experts, without representing any special interests of their countries or institutions.

The first of these recommendations - developed in the 1960s and published in 1971 - was a standardized layout key setting out precise document sizes, form designs and a list of items to be included (Section 0). This Recommendation No 1 provided the international basis for the standardization of documents used in domestic and international supply chains, and for the visual layout of these documents. It became the first international trade facilitation standard to be recommended by the UNECE, and is widely used by governmental authorities, organizations and business communities as the basis for a standard and aligned design of documents used in administrations, trade and transport.

In 2011, UN/CEFACT published its first version of Recommendation No. 34 (Data Simplification and Standardization for International Trade) which provides guidelines for a simple, easy-to-use and cost-effective four-stage process to achieve a national simplified and standardized dataset. The process includes the elimination of duplicate submissions and the removal of redundant elements. Upon its completion, the outcome should be a more efficient and effective exchange of information between Trade and Government (see Section 6). Box 1.2 provides a list of the most pertinent recommendations developed by UN/CEFACT.

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12 The experts participate independently, on a voluntary basis and come from, *inter alia*, governments, private companies, intergovernmental organizations, industry associations (representing large collective groups of private-sector companies), and academia.


1.6 Business process analysis and data harmonization as sample tools for simplifying documentary procedures.

The objective of conducting a business process analysis (BPA) for trade facilitation is to understand the attributes of business processes and their relationships. It tries to provide answers to the following questions:

- What is done in a particular process?
- Who is involved in this process?
- What documents/information are required for execution of this process?
- What are the relevant procedures, rules and regulations?
- Indication of some quantitative indicators (e.g. number of steps, time & costs).

Project Approach.

Primary analysis and simplification of documentary procedures and formalities.

The obligation to review and streamline documentary formalities is primarily with the agency that is responsible for each concrete document. For instance, generally Customs oversees customs declarations, phytosanitary inspection agencies are responsible for the phytosanitary certificate, and chambers of commerce and industry for certificate of origin. However, in some
countries the agency responsible for a certain document may vary. For this reason, the responsible agency should carry out the first level of analysis of the complexity of formalities and documentary procedures, including interviews with stakeholders from the business community. Simplification of procedures and documentary requirements is already done on this level.

If the process of review and streamlining of formalities is more complicated, the country and the responsible agency may decide to carry out a BPA. BPA should be carried out from a project perspective, with a dedicated budget and team and within a defined timeline. Any identified duplication of data and document requirements can be eliminated through data harmonization. Data harmonization should also be addressed through a project approach.

If a BPA approach is adopted for the analysis and simplification of business processes, including the documentary requirements and procedures, a project approach should be adopted.

The project tasks in this process include, inter alia, (i) identification of the required tasks; (ii) preparation of work teams; (iii) estimation of resources and efforts for carrying out each task; (iv) development of the project schedule; (v) assigning tasks to team members, and (vi) development of a detailed project plan.

Role of Lead Agency & Participating Agencies in both BPA and Data Harmonization

A key factor in the BPA and data and document simplification process is the selection of a strong lead agency. The lead agency takes responsibility for promoting the concept, gaining initial approval to proceed through a robust business case based on a feasibility study, and organizing, planning and committing the resources necessary for the approved exercise. For both the BPA and data harmonization, once the lead agency is selected it is necessary to select the other government agencies that will be involved in the project. It is unlikely that any government will be able to simplify the relevant trade data of all agencies and departments simultaneously. Therefore, the authorities should consider prioritizing agencies based on the volume of data requirements or other government priorities such as regulatory control requirements (to defend the economic, social, environmental and other interests of the country), revenue yield, the need for official controls in specific trade sectors, or areas with unnecessary compliance costs. For instance, for certain regulatory procedures information is required by key control agencies for the concrete type of goods (such as Customs regulatory inspections etc.). Thus, these governmental agencies can be considered in the first tier of the exercise. Another factor for selecting an agency is its willingness and desire to participate in the process. The important point is that after completing the first tier of agencies, the process is repeated as additional agencies begin to see the obvious benefits and agree to participate.\(^{16}\)

\(^{16}\) Ibid.
**KEY HIGHLIGHTS**

1) Trade facilitation is the simplification, standardization and harmonization of procedures and associated information flows required to move goods from seller to buyer and to make payment.

2) TFA Article 10 on formalities related to import, export and transit of goods contains provisions on minimizing formalities, simplifying documentation requirements and single window, and builds on UNECE and UN/CEFACT Recommendations No. 1, 33, 34, 35 and 36.

3) Trade-related formalities in Article 10 can include, *inter alia*, acceptance of copies, simplification of trade documents, harmonization in accordance with international standards, electronic exchange of data, use of risk management and automated border procedures, streamlining of border controls, single submission (single window), post-clearance audits, and authorized economic operators.

4) “Documentary procedures” encompass all activities ranging from the ordering of goods, physical transfer of goods, and payment for goods along the supply chain. These activities are traditionally carried out through the handling of paper and electronic documents.

5) The UN/CEFACT develops global trade facilitation and electronic business recommendations, standards and guidelines to bring simple, transparent and effective processes to global businesses, and enable the efficient and automated exchange of information.

6) Business process is generally defined as a collection of related and structured activities or tasks that produce a specific service or product. Business Process Analysis helps to understand the attributes of business processes and their relationships and to determine the practicality of trade a transaction process—including what documents are required and used in the business process. A BPA allows us to analyse and discover possible duplication of data and document requirements and indicates possibilities to eliminate redundancies.

7) The role of lead agency in the simplification and standardization process includes promoting the concept of simplification and harmonization:
SECTION 2
DESCRIPTION OF THE TRADE TRANSACTION AND THE IMPORTANCE OF SIMPLIFYING AND IMPROVING EFFICIENCY OF COLLECTION AND SHARING OF INFORMATION

This Section will introduce the UN/CEFACT International Supply Chain Process Model, discuss the classification of various trade-related documents used in this supply chain, and provide an overview of the relation between the Sales and Transport Services Contracts.

2.1 UN/CEFACT International Supply Chain Process Model

The procedures for international purchasing and supply are often cumbersome, time consuming and inefficient. This can affect a country's economic viability as well as introduce unnecessary costs to the consumer and poor service to customers. The international supply chain involves a potentially large number of activities performed by several parties. An activity may be carried out by different parties depending on the terms of business, type of product, country and market etc., and depending on the methods of operation of the buyer and seller. If a supply chain is to operate effectively and efficiently the relationships and activities must be clearly identified and managed.

Notably, the Buy-Ship-Pay Model (developed by UN/CEFACT) represents a supply chain as a sequence of these activities (business processes) that can be grouped into the high-level domains of Buy, Ship and Pay. This simple model presents a clear view of the key elements of a trade transaction and, consequently, properly compiles all the necessary trade facilitation measures.

Figure 2.1 below illustrates the use of this approach—particularly the business process and transactions incorporated in this model. The “BUY” domain groups the activities of identifying a potential trading partner, establishing a trading agreement and placing an order. The “SHIP” domain is broken down into five further activities and involves the physical transfer of the goods, including official controls. “PAY” represents the payment activity from buyer to seller.

The “BUY” domain includes commercial procedures (establish of sales contract, order goods or services, advise on delivery etc.), the “SHIP” domain incorporates transport and regulatory procedures (establish transport contract; collect, move and deliver goods; provide waybills;...
obtain import/export licenses; provide customs declarations etc.), and the “PAY” domain contains financial procedures (provide insurance, execute payment, issue statements etc.).

**Figure 2.1 UN/CEFACT International Supply Chain Process Model**

Source: UN/CEFACT

### 2.2 Single Windows Document Families

A lack of coherent, consistent and standardized documents in the 1960-70s was one of the key problems in the exchange of information by the trading parties at that time. It triggered delays and inefficiency in the trade-related information flow. To address these issues the UNECE WP.4 developed Recommendation No. 1 (see Section 0) which became a framework for governments and businesses to create aligned standard documents to establish a series of aligned trade documents.

These documents allow trading partners, delivery and transport service providers to select the forms required to meet business needs and regulatory requirements for a particular trade transaction. In addition, they also offer the opportunity for all the stakeholders to make a bridge to a paperless environment. The trade-related information could then be available, in either electronic form or a United Nations Layout Key (UNLK) aligned format, at any point and to any party involved in the transaction that has been properly approved and certified in advance.21

In order to successfully design these aligned series, they should be grouped into categories or “families” of documents, such as trade documents (e.g. quotation, order, invoice); materials

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21 UN/CEFACT Recommendation 1 (ECE/TRADE/432).
management documents (e.g. dispatch advice, pick list, packing list); transport documents (e.g. bill of lading, shipping instructions); customs documents (e.g. export/import/transit declarations, cargo reports); etc. Thus, families of documents help in eliminating duplicate and redundant forms, cutting out waste and improving the speed and efficiency of the flow of trade-related information (Figure 2.2).

Figure 2.2 Single Window document families

![Single Window document families diagram](source: UN/CEFACT)

The “SHIP” aspect of the Buy-Ship-Pay model corresponds to the execution of a service. In this way, in the Sales Contract, the “SHIP” is selling the goods and ensuring the service transfer. A Transport Contract is established between consignor and/or consignee and the carrier. This Transport Contract follows the same model: the “BUY” reservation and other order of transport services; the “SHIP” is the execution of the transport movement and often the clearance of the goods; and the “PAY” is the remuneration of this service (see Figure 2.3).

Organizing and executing the movement of goods can often be very complex due to the large number of stakeholders involved. They need to communicate and exchange relevant information very quickly and efficiently as well as fulfil contractual obligations and comply with several documentary procedures and requirements from various authorities.\textsuperscript{23}

The supply chain process model (see Section 2.1) involves interrelated business areas representing commercial transport contracts; operational transport and logistics; and regulatory and border clearance processes combined with the corresponding information used both in each business area and among different business areas.

Throughout the international purchase and supply chain various types of information are exchanged. The following chart provides an overview of the relations between families of data. In particular, it looks at Sales and Transport Data and regulatory process and how they relate to each other (see Figure 2.4). On the top (shipment view), data in yellow boxes represents information between buyers and sellers in a Sales Contract while data in pink boxes represents detailed import/export customs declarations. On the bottom (consignment/transport and

\begin{itemize}
\item UNECE Trade Facilitation Implementation Guide online information, ”What does it involve”. Available at: http://tfig.unece.org/contents/what-involve.htm (accessed 11 December 2018).
\end{itemize}
logistics view), data in blue boxes represents information exchange between parties providing or contracting transport and logistics services in a Transport Contract while data in purple boxes provides the arrival or departure cargo report.

The relationship between the shipment view and the consignment view is multiple to multiple. One shipment can correspond to one consignment (1 to 1); however, often several shipments are grouped into a single consignment (n to 1), or sometimes a single shipment will be transported in several different consignments (1 to n). The relationship can also be a combination of these (n to n).

Often when goods arrive at the border the transport service provider only has the information related to the Transport Service Contract. Information related to the shipment details and delivery – agreed in a Sales Contract – is not available for customs. This lack of information triggers stoppages and delays at the time of border crossing because Transport Contracts must comply with various international regulations and conventions. For this reason, the complete “BUY-SHIP-PAY” model can provide guidance on the relationship between the various data in Figure 2.4, where to find appropriate data and who can/should potentially provide this.

Figure 2.4 The relationship between International Sales and Transport Services Contracts

![Figure 2.4 The relationship between International Sales and Transport Services Contracts](source: UN/CEFACT)
KEY HIGHLIGHTS

1) The UN/CEFACT Buy-Ship-Pay Model represents a supply chain as a sequence of activities—business processes that can be grouped into the high-level domains of Buy, Ship and Pay.

2) “BUY” domain groups the activities related to identifying a potential trading partner, establishing a trading agreement and placing an order. The “SHIP” domain involves execution of the contract, often including physical transfer of goods and official controls etc.; and the “PAY” domain represents the payment activity from buyer to seller.

3) The Model also identifies the key commercial (BUY), transport and regulatory (SHIP), and financial (PAY) procedures involved in the international supply chain and provides an overview of the information exchanged between the stakeholders throughout its various steps.

4) The United Nation Layout Key (UNLK) provides a standard model of document formats and the potential data which should be contained in it.

5) “Families” of documents are categories of documents classified according to the functions they perform, e.g. trade documents (quotation, order, invoice); materials management documents (dispatch advice, pick list, packing list); transport documents (bill of lading, shipping instructions); customs documents (export/import/transit declarations, cargo reports); etc. The families of documents can help to eliminate duplicate and redundant forms, cut out waste and improve the speed and efficiency of the flow of trade-related information.
SECTION 3
DOCUMENTARY REQUIREMENTS IN INTERNATIONAL TRADE

This Section will provide an overview of different types of trade-related documents used in an international supply chain and outline their functions and challenges.

3.1 What are trade documents and what are they used for?

The global flow of goods is not possible without the global flow of information that precedes it. This information is exchanged between various stakeholders and actors (buyers, sellers, Customs, chambers of commerce, transport services providers, etc.) in paper or electronic format. These are the trade and transport documents. These trade documents, and the data elements they contain, are defined and prescribed by national and international regulatory requirements in such areas as customs control, health, consumer protection, safety, tax and revenue, trade policy, environment, security and statistics. Therefore, at present they are the core means of exchanging information and are crucial for the efficiency of processes, risk analyses and supply chain management. UN/CEFACT Recommendation No.1 classifies trade documents according to the sector from which they originate.

Commercial transaction sector documents

These include documents exchanged between partners in international trade regarding information to tender, the exchange between offeror and offeree, and the conclusion of a contract. Examples of such documents are offers and quotations, orders, pro-forma invoices, and despatch advice.

Payment sector documents

These include documents exchanged between partners in international trade and their banks, as well as between banks for payments related to commercial transactions. They include commercial invoices, collection payment advice, documentary credit applications, applications of bankers' draft and bankers' guarantee, etc.

Transport and related service sector documents

These are documentary requirements of the procedures incidental to transport and related to the interface between trading partners and carriers (i.e. those related to forwarding, handling and insuring). They include documents such as transport contracts (bills of lading, consignment notes); cargo freight manifests; freight invoices; arrival notices; insurance policies and warehouse receipts.

Official control documents

These are required for the control of goods conducted by various official bodies for the export, transit and import of goods. They include goods declaration for customs purposes, SPS

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certificates, control and inspection certificates and dangerous goods declarations.\textsuperscript{25} Table 3.1 provides some examples of trade documents.

**Functions of trade documents**

As shown above, trade documents have different origins and they also serve different functions. They can act as contractual documents, such as insurance policies, bills of lading and commercial invoices. At the same time, they may support information during a different formality. A good example is a commercial invoice, which is a document needed for payment between seller and buyer. It is also used by customs for the classification and valuation of goods and must be submitted as a supporting document in the customs clearance process. It is also used as a reference document for a good deal of other actors in the supply chain.

**Challenges related to trade documents**

Numerous, cumbersome documentary procedures and requirements for exporters and importers add time and cost to trade transactions and often deter business—especially small and medium-sized enterprises (SMEs)—from entering international markets. Particularly for landlocked countries and countries distant from major markets, complex and inefficient procedures can be a major constraint, creating many additional costs and dramatically reducing the competitiveness of their goods in international markets. According to an ESCAP report, in one example in the Asia-Pacific region 90 documents were required per import transaction, entailing up to 70 signatures and 12 separate cash payments.\textsuperscript{26} Likewise, a World Bank study demonstrated that the number of documents required for exportation and importation does add to the time cost of shipments; however the impact is largely dependent on the GDP and size of the country. Specifically, relatively poor countries and large countries have a higher time cost associated with increased documentation as compared to richer and smaller economies which rely more on trade, and therefore invest more resources into building more efficient documentation systems.\textsuperscript{27}

In addition, to secure the global supply chains, various countries introduced security procedures which also affect the cost and processing time for documents such as 24-hour advance vessel manifest (24-hour rule), Advance Cargo Information (ACI) requirements, etc. Reportedly, the 24-hour manifest—introduced initially by the US—requires a large number of data elements for each container, including, \textit{inter alia}, (i) a detailed and precise description of the cargo or a 6 digit HTSUS (Harmonized Tariff Schedule of the United States); (ii) numbers and quantities of the lowest external packaging unit as per bill of lading; (iii) container number

\begin{itemize}
\item \textsuperscript{25} UN/CEFACT Recommendation 1 (ECE/TRADE/432) and UNECE Trade Facilitation Implementation Guide online information, "Trade documents". Available at: \url{http://tfig.unece.org/contents/trade-documents.htm} (accessed 11 December 2018).
\end{itemize}
and (if applicable) seal number; and (iv) accurate weight of the cargo. According to IATA, the cost to issue and process paper documents per consignment is around $US 30, while electronic methods may reduce this cost to $US 6.

In conclusion, this Section outlined various types of trade documents classified according to the sector from which they originate and the various functions they perform. While their role in international trade is essential, a large amount of these documents create significant impediments to trade.

### 3.2 Examples of trade documents

#### Table 3.1 Trade documents

<table>
<thead>
<tr>
<th>Name of the document</th>
<th>UN Code list 1001 Document name code</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air waybill</td>
<td>740</td>
<td>Document/message made out by, or on behalf of, the shipper which evidences the contract between the shipper and carrier(s) for carriage of goods over routes of the carrier(s) and which is identified by the airline prefix issuing the document plus a serial (IATA).</td>
</tr>
<tr>
<td>Bill of lading</td>
<td>705</td>
<td>Negotiable document/message which evidences a contract of carriage by sea and the taking over or loading of goods by carrier, and by which carrier undertakes to deliver goods against surrender of the document. A provision in the document that goods are to be delivered to the order of a named person, or to order, or to bearer, constitutes such an undertaking.</td>
</tr>
<tr>
<td>Cargo manifest</td>
<td>785</td>
<td>Listing of goods comprising the cargo carried in a means of transport or in a transport-unit. The cargo manifest contains the commercial particulars of the goods, such as transport document numbers, consignors, consignees, shipping marks, number and kind of packages and descriptions and quantities of the goods</td>
</tr>
<tr>
<td>Certificate of origin</td>
<td>861</td>
<td>Customs certificate used in preferential goods interchanges between EU countries and EU external countries.</td>
</tr>
<tr>
<td>Collection order</td>
<td>447</td>
<td>Document/message whereby a bank is instructed (or requested) to handle financial and/or commercial documents in order to obtain acceptance and/or payment, or to deliver documents on such other terms and conditions as may be specified.</td>
</tr>
<tr>
<td>Consular invoice</td>
<td>870</td>
<td>Document/message to be prepared by an exporter in his country and presented to a diplomatic representative of the importing country for endorsement, and subsequently to be presented by the importer in connection with the import of the goods described therein.</td>
</tr>
<tr>
<td>Contract</td>
<td>315</td>
<td>(1296) Document/message evidencing an agreement between the seller and the buyer for the supply of goods or services; its effects are equivalent to those of an order followed by an acknowledgement of order.</td>
</tr>
<tr>
<td>Contract price quote</td>
<td>364</td>
<td>Document/message confirming contractual price conditions under which goods are offered.</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Name of the document</th>
<th>UN Code list</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customs delivery note</td>
<td>932</td>
<td>Document/message whereby a Customs authority releases goods under its control to be placed at the disposal of the party concerned. Synonym: Customs release note.</td>
</tr>
<tr>
<td>Dangerous goods declaration</td>
<td>890</td>
<td>(1115) Document/message issued by a consignor in accordance with applicable conventions or regulations, describing hazardous goods or materials for transport purposes, and stating that the latter have been packed and labelled in accordance with the provisions of the relevant conventions or regulations.</td>
</tr>
<tr>
<td>Despatch advice</td>
<td>351</td>
<td>Document/message by means of which the seller or consignor informs the consignee about the despatch of goods.</td>
</tr>
<tr>
<td>Delivery note</td>
<td>270</td>
<td>Paper document attached to a consignment informing the receiving party about contents of this consignment.</td>
</tr>
<tr>
<td>Direct Payment Valuation</td>
<td>202</td>
<td>Document/message addressed, for instance, by a general contractor to the owner, in order that a direct payment be made to a subcontractor.</td>
</tr>
<tr>
<td>Enquiry</td>
<td>210</td>
<td>Document/message issued by a party interested in the purchase of goods specified therein and indicating particular, desirable conditions regarding delivery terms, etc., addressed to a prospective supplier with a view to obtaining an offer.</td>
</tr>
<tr>
<td>Exchange control declaration, export</td>
<td>812</td>
<td>Document/message completed by an exporter/seller as a means whereby the competent body may control that the amount of foreign exchange accrued from a trade transaction is repatriated in accordance with the conditions of payment and exchange control regulations in force.</td>
</tr>
<tr>
<td>Export licence</td>
<td>811</td>
<td>Permit issued by a government authority permitting exportation of a specified commodity subject to specified conditions such as quantity, country of destination, etc. Synonym: Embargo permit.</td>
</tr>
<tr>
<td>Forwarding instructions</td>
<td>610</td>
<td>Document/message issued to a freight forwarder, giving instructions regarding the action to be taken by the forwarder for the forwarding of goods described therein.</td>
</tr>
<tr>
<td>Forwarder's invoice</td>
<td>623</td>
<td>Invoice issued by a freight forwarder specifying services rendered and costs incurred and claiming payment therefore.</td>
</tr>
<tr>
<td>Freight invoice</td>
<td>780</td>
<td>Document/message issued by a transport operation specifying freight costs and charges incurred for a transport operation and stating conditions of payment.</td>
</tr>
<tr>
<td>Goods declaration for importation</td>
<td>929</td>
<td>Document/message by which goods are declared for import Customs clearance [sister entry of 830].</td>
</tr>
<tr>
<td>Goods receipt</td>
<td>632</td>
<td>Document/message to acknowledge the receipt of goods and in addition may indicate receiving conditions.</td>
</tr>
<tr>
<td>Implementation guideline</td>
<td>302</td>
<td>A document specifying the criterion and format for exchanging information in an electronic data interchange syntax.</td>
</tr>
<tr>
<td>Import licence</td>
<td>911</td>
<td>Document/message issued by the competent body in accordance with import regulations in force, by which authorization is granted to a named party to import either a limited quantity of designated articles or an unlimited quantity of such articles during a limited period, under conditions specified in the document.</td>
</tr>
<tr>
<td>Inspection report</td>
<td>293</td>
<td>A message informing a party of the results of an inspection.</td>
</tr>
<tr>
<td>Order</td>
<td>220</td>
<td>Document/message by means of which a buyer initiates a transaction with a seller involving the supply of goods or services as specified,</td>
</tr>
<tr>
<td>Name of the document</td>
<td>UN Code list 1001 Document name code</td>
<td>Definition</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>---------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Packing instructions</td>
<td>140</td>
<td>Document/message within an enterprise giving instructions on how goods are to be packed.</td>
</tr>
<tr>
<td>Payment order</td>
<td>450</td>
<td>Document/message containing information needed to initiate the payment. It may cover the financial settlement for one or more commercial trade transactions. A payment order is an instruction to the ordered bank to arrange for the payment of one specified amount to the beneficiary.</td>
</tr>
<tr>
<td>Phytosanitary certificate</td>
<td>851</td>
<td>Document/message issued by the competent body in the exporting country evidencing that plants, fruit, or vegetables are free from disease and fit for consumption and giving details on fumigation or other treatment to which they may have been subjected.</td>
</tr>
<tr>
<td>Price variation invoice</td>
<td>295</td>
<td>An invoice which requests payment for the difference in price between an original invoice and the result of the application of a price variation formula.</td>
</tr>
<tr>
<td>Proforma invoice</td>
<td>325</td>
<td>Document/message serving as a preliminary invoice, containing - on the whole the same information as the final invoice, but not actually claiming payment.</td>
</tr>
<tr>
<td>Rail consignment note forwarder copy</td>
<td>972</td>
<td>Document which is a copy of the rail consignment note printed especially for the need of the forwarder.</td>
</tr>
<tr>
<td>Road consignment note</td>
<td>720</td>
<td>Transport document/message which evidences a contract between a carrier and a sender for the carriage of goods by road (generic term). Remark: For international road traffic, this document must contain at least the particulars prescribed by the convention on the contract for the international carriage of goods by road (CMR).</td>
</tr>
<tr>
<td>TIR carnets</td>
<td>952</td>
<td>International Customs document (International Transit by Road), issued by a guaranteeing association approved by the Customs authorities, under the cover of which goods are carried, in most cases under Customs seal, in road vehicles and/or containers in compliance with the requirements of the Customs TIR Convention of the International Transport of Goods under cover the TIR Carnets (UNECE).</td>
</tr>
<tr>
<td>Freight manifest</td>
<td>786</td>
<td>Document/message containing the same information as a cargo manifest, and additional details on freight amounts, charges, etc.</td>
</tr>
<tr>
<td>Veterinary certificate</td>
<td>853</td>
<td>Document/message issued by the competent authority in the exporting country evidencing that live animals or birds are not infested or infected with disease, and giving details regarding their provenance, and of vaccinations and other treatment to which they have been subjected.</td>
</tr>
</tbody>
</table>

Source: UN/EDIFACT Code list 1001 Document Name Code. Available at: https://service.unece.org/trade/untdid/d11a/tred/tred1001.htm
1) Trade documents represent all the information exchanged between various stakeholders and actors (e.g. buyers, sellers, customs, chambers of commerce, transport services providers) in paper form, or an electronic equivalent.

2) Trade documents and the data elements they contain are defined and prescribed by national and international regulatory requirements in fields such as health, consumer protection, safety, tax and revenue, trade policy, environment and security.

3) By their function trade documents can be classified into:
   - Commercial transaction sector documents
   - Payment sector documents
   - Transport and related service sector documents
   - Official control documents

   Trade documents also act as contractual documents. They support information during a trade transaction process.

4) A large quantity of trade documents adds time and cost to trade transactions, reduces competitiveness of goods in international markets and deters businesses from entering foreign markets.
SECTION 4
UN/CEFACT AND OTHER STANDARDS THAT CAN BE USED FOR THE SIMPLIFICATION OF DOCUMENTARY REQUIREMENTS

This Section will provide a brief overview of UN/CEFACT and other standards that can be applied when streamlining documentary requirements and formalities in an international supply chain.

International trade takes place in a multi-lingual environment, touching legislation of different countries and economic regions and involving many different, independent parties. Trade documents, in both paper based and electronic format, are frequently used to exchange and record information in trade transactions (see Section 3.1). Simplification and standardization of these documents is a key step to allow for a smooth exchange of information and to facilitate the cross-border exchange of goods.

Since the 1960s, the UNECE has been working on the improvement of global cooperation in trade facilitation mechanisms by developing global trade facilitation and electronic business recommendations, standards and guidelines to bring simple, transparent and effective processes to global businesses and enhance the efficient and automated exchange of information. The main UN/CEFACT standards pertinent to documentary procedures are listed below.

4.1 United Nations Layout Key

Definition

The United Nations Layout Key (UNLK) is a model form that incorporates agreed specifications on paper size, margins, form design sheets and presentation of data. It indicates places for the locations of specific type of information.\(^{30}\)

Background

Until the 1960s, there was no standardization in terms of design, content or layout to trade documents. Therefore, a clear need for global solutions had emerged. In October 1960, the Committee on the Development of Trade of the Economic Commission for Europe set up a Working Party (WP.4) to examine, *inter alia*, the possibility of drawing up recommendations with a view to the possible reduction, simplification and standardization of external trade documents (see Section 0). During its first session in August 1961, the WP agreed to prepare an international model form which would incorporate all data elements needed in various external trade documents and located in specific defined spaces. Having agreed on paper size, form design principles and the list of items to be included, a draft model was sent to Governments and relevant international organizations for approval. In October 1963, the revised model was adopted; it was decided that it would be used as a layout key for the simplification and standardization of trade-related documents.

Between 1963 and 1969 the UNLK was introduced by many international organizations responsible for banking, customs, freight forwarding, postal services, and for transport by sea.

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rail and road. It became a formal recommendation in 1978 after the Committee on the Development of Trade noted that the Layout Key for trade documents had “...reached a level of world-wide acceptance that made it feasible and desirable to refer to it as the 'United Nations Layout Key for Trade Documents'.”

Concept

The UNLK provides an international basis for the standardization of documents used in domestic and international supply chains, and for the visual layout of documents. It is comprised of the following:

- A standard Layout Key to render information;
- Rules for the modification of the standard Layout Key;
- Standards for coded data entries;
- A standard for the semantic information (United Nations Trade Data Element Directory, UNTDED);
- A concept to create aligned sets of trade documents.

The UNLK provided a design tool enabling the redesign of “international” trade by international organizations and it was endorsed in the WTO Trade Facilitation Agreement and the WCO Revised Kyoto Convention.

UNLK Technical Principles

Image 4.1 Graphical Principle of the Layout Chart
(source: UN/CEFACT)

The UNLK is based on a controlled measurement of margins, lines, spacing, font size to allow for standard matrix printing of the information and, ultimately, automated machine reading of the information. It also allows for carbon-copy filling of multiple documents in a single printing (see Image 4.1). These measurements include:

- A4 size paper - 210mm x 297mm (as defined in ISO 216);
- top margin and left-side margins are fixed at 10mm and 20mm, respectively;
- the Image Area (where all the information can be entered) corresponds to 183mm in width and 280mm in height;

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31 UN/CEFACT Recommendation 1 (ECE/TRADE/432)
- the Image Area is divided into a grid of “Standard Boxes” each being 22.86mm in width and 8.48mm in height. This results in a grid called the “Layout Chart.”

Image 4.2 General Principle of the Layout Chart

![Diagram showing the Image Area divided into four parts: Parties and Commercial Transport Data, Goods Details, and a "Free disposal" area.](image)

The Image Area is broken down into four parts, as follows (Image 4.2):

- the upper-left side is reserved for parties (consignor, consignee, forwarder) and transport details;
- the upper-right is reserved for commercial details (terms of delivery, payment), buyer (if different from consignee), dates and references, statistical data (country of origin and destination);
- the middle section is reserved for goods details (shipping marks, number, quantity and value). In general, most of the documents only have one or two goods, but there might be cases where there can be significantly more goods on a single document such as for automotive or machine parts, in which case there can be subsequent pages which only repeat this middle section;
- the fourth part – “free disposal area” – includes the information specific to the particular document.

Data fields

- The UNLK Document is generated by creating boxes or fields where the information is entered. The fields are composed of a specific number of “Standard Boxes” and have a frame around them (Image 4.3). Each field usually has a heading (a box title) which indicates what information must be entered. This information must be in smaller font size in the top left-hand side of the field. Each field can also be numbered in smaller font size in the top left-hand side of the field. Image 4.3 demonstrates how the information is entered into the fields, a descriptive data entry is aligned to the left, while a codified data entry is aligned to the right.33

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32 These find their source in documents printed with a typewriter or printer. UN/CEFACT Recommendation 1 (ECE/TRADE/432).
33 Ibid.
Box completion guidelines

Box Completion Guidelines (BCG) provide instructions and recommendations on how to complete a specific trade document. They reflect the best business practice, legal and administrative requirements and accepted international standards for the facilitation of trade documents.

For each box in the form, the BCG provide a list of the mandatory or optional data elements (in terms of UNTDED data elements) and a link to the applicable code list. This specification is the basis for defining the electronic version of the document. The BCG has two components: a form with numbered boxes and the text document describing the content of each box. Below (Images 4.4 and 4.5) are examples of the BCGs for the Sea Waybill.

Source: UN/CEFACT

Image 4.4 The Sea Waybill form with boxes numbered

<table>
<thead>
<tr>
<th>UNeDocs</th>
<th>Non Negotiable Sea Waybill</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Consignor</strong> (name, address, tax reference)</td>
<td><strong>Shipper's reference</strong> 02a</td>
</tr>
<tr>
<td>01</td>
<td><strong>Bill of lading number</strong> 02b</td>
</tr>
<tr>
<td></td>
<td><strong>Forwarder's reference</strong> 02c</td>
</tr>
<tr>
<td></td>
<td><strong>Unique consignment reference</strong> 02d</td>
</tr>
<tr>
<td><strong>Consignee</strong> (name, address, tax reference)</td>
<td><strong>Carrier (name, address, tax reference)</strong> 04</td>
</tr>
<tr>
<td>03</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Additional notify party (name, address, tax reference)</strong> 06</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Notify party</strong> (name, address, tax reference)</td>
<td></td>
</tr>
<tr>
<td>05</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pre-carriage by</strong> 07a</td>
<td><strong>Place of receipt</strong> 07b UN/LOCODE</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Vessel / voyage no</strong> 07c</td>
<td><strong>Port of loading</strong> 07d UN/LOCODE</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Port of discharge</strong> 07e</td>
<td><strong>Final place of delivery by sea carrier</strong> 07f UN/LOCODE</td>
</tr>
<tr>
<td>Marks and numbers; transport unit ID</td>
<td>Number and kind of packages: shipping description of goods</td>
</tr>
<tr>
<td></td>
<td>Gross weight</td>
</tr>
</tbody>
</table>

*Source: UN/CEFACT*
The Box Completion Guidelines for Box 01 (Consignor)

<table>
<thead>
<tr>
<th>UNTDED tag</th>
<th>Data element name</th>
<th>Data element description</th>
<th>Directions for completing the box</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>3336</td>
<td>Consignor. Identification.Text</td>
<td>Name of the party consigning the goods as stipulated in the contract by the party ordering the transport</td>
<td>Enter the name and address of the party consigning the goods; this may be the exporter or seller</td>
<td>Mandatory. Repr. an.256</td>
</tr>
<tr>
<td>3446</td>
<td>Party. Tax.Identifier.</td>
<td>To identify a number assigned to a party by a tax authority</td>
<td>If the company is registered for VAT enter the relevant VAT number for EC supplies only. The number should be prefixed with the country code for the state e.g. GB is the code for United Kingdom</td>
<td>Mandatory if registered for VAT</td>
</tr>
</tbody>
</table>

Box 02a: Consignor’s reference

<table>
<thead>
<tr>
<th>UNTDED tag</th>
<th>Data element name</th>
<th>Data element description</th>
<th>Directions for completing the box</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1140</td>
<td>Consignment. Consignor Assigned Identification Identifier.</td>
<td>Reference number assigned by the consignor to a particular consignment</td>
<td>Enter the consignor’s number used to reference this consignment</td>
<td>Recommended. Repr. an.35</td>
</tr>
</tbody>
</table>

Source: UN/CEFACT

Some examples of international documents based on the UNLK include:

Regulatory documents
- Single Administrative Document (SAD, European Union)
- Phytosanitary Certificate (Plant Protection Convention)
- Certificate of Origin (WCO Revised Kyoto Convention)
- GSP Certificate (UNCTAD)
- Dangerous Goods Declaration (UNECE)
- Dispatch Note for Post Parcels (World Post Convention)

Transport documents
- Standard Bill of Lading (International Chamber of Shipping)
- Freight Forwarding Instructions (FIATA)
- International Road Consignment Note (CMR)
- International Rail Consignment Note (CIM)
- Universal Air Waybill (IATA)
- The IMO Standardized Forms (FAL 1-7)

---

**Single Administrative Document (SAD)**

The Single Administrative Document (SAD)\(^{36}\) is one of the main customs forms used in international trade in the European Union, Switzerland, Norway, Iceland, Turkey, Macedonia and Serbia (see Image 4.6). Traders and agents can use the SAD to assist with declaring import, export, transit and community status declarations in manual process situations. The SAD consists of 54 boxes, and the complete version comes in eight copies—each for a different point in the trading process. Parts 2 and 3 are for export; parts 6, 7 and 8 are for import and parts 1, 4, and 5 are for transit. These copies are available in appendices B1 and B3 in Annex 9 of Regulation 2016/341\(^{37}\). All the detailed information on rules of use of SAD, and the particulars for what can be entered in the various boxes, are set out in Appendix C1 to Annex 9 of the Regulation.

The codes to be entered are shown in Appendix D1 to Annex 9 of the Regulation.

**Forms of the International Federation of Freight Forwarders Associations (FIATA)**\(^{38}\)

All FIATA documents comply with the UNLK (Image 4.7). They include:

- FIATA FCT - FIATA Forwarders Certificate of Receipt (1955, green colour);
- FIATA FCT - FIATA Forwarders Certificate of Transport (1959, yellow colour);
- FBL - FIATA Negotiable Combined Transport Bill of Lading (1970, blue colour);
- FWR - FIATA Warehouse Receipt (1975, orange colour).

---


Benefits

Using the UNLK to create aligned documents creates various benefits for multiple stakeholders, because they are

- Easy to complete, following a simple, logical and consistent format with common data entered in the same position on each form;
- Forms derived from the standard can cover the whole trade transaction, both domestic and international, or specific links in international supply chain;
- Particularly helpful where a document is completed in a language foreign to the reader, sometimes with a foreign alphabet or script;
- Easier to check, improving the speed and flow of information in the trade transaction—especially for time-sensitive (just-in-time) goods movements;
- Less prone to error; and
- Beneficial for automated printing and printing of a series of documents. For example, a set of trade “paper” documents with carbon sheeted back sides could be put into a typewriter, with the Master Form on the top. The information would be printed on the Master Form and, through the carbon copy process, copied into the relevant fields of the underlying set of trade documents.

4.2 Code lists

Definition

Code lists are information which has been codified to be used in documents to constrain input and avoid errors. When filling in forms, instead of keying in free text, a code list will constrain the accepted entry. This is an essential part of the document alignment and data
harmonization process for business or government messages. Many of the standard code lists in use today were developed for EDIFACT messages and are published by UN/CEFACT.39

**Background Country codes and UN/LOCODEs**

When moving goods from one place to another, the identification of a particular location is required, e.g. addresses, shipping marks, data elements identifying ports of call, ports or places of loading or unloading, ports or places of transhipment and destination, places of clearance by customs. The names of such locations are often spelled in various ways, and often the same location is given different names in different languages, which creates confusion and difficulties for the information interchange. For instance, below is the list of commonly used names and abbreviations for the country Germany:

**Germany, GE, GER, Deutschland, D, DE, West-Deutschland, Bundesrepublik Deutschland, BRD, République Fédérale d’Allemagne, RFA.**

To address these issues, in 1972, the Group of Experts on Automatic Data Processing and Coding—a subsidiary organ of the WP.4—decided to define requirements for country codes for use in international trade (see Section 0). Subsequently, the ISO and UNECE agreed to set up a Co-ordination committee—composed of one representative each from the International Organization for Standardization (ISO), International Telecommunications Union (ITU) and the United Nations Conference on Trade and Development (UNCTAD)—to prepare proposals regarding a list of entities, candidate numerical and alphabetical codes and maintenance arrangements. Two years later, in 1974, the WP.4 adopted Recommendation ISO Country Code for Representation of Names of Countries. Later, the WP.4 prepared codes for port names and other locations (e.g. inland freight terminals and maritime ports). In addition, upon the request of the Governments concerned, it was agreed that any other locations could be included. Subsequently, the criteria for inclusion was extended to cover all locations frequently used for goods movements associated with international trade.40

**Concept**

Since the 1970s, the UNECE has developed several recommendations and code lists for the most important data elements in international trade such as country codes, currency codes, units of measurement, and codes for trade and transport locations (see Tables 4.1 and 4.2).

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### Table 4.1 UN/CEFACT Recommendations and Code lists.

<table>
<thead>
<tr>
<th>UNECE Rec. No.</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rec 3</td>
<td>Code for the Representation of Names of Countries</td>
<td>Albania AL 008</td>
</tr>
<tr>
<td>Rec 5</td>
<td>Abbreviations of INCOTERMS of the International Chamber of Commerce</td>
<td>FCA FREE CARRIER FRANCO TRANSPORTEUR</td>
</tr>
<tr>
<td>Rec 7</td>
<td>Numerical Representation of Dates, Time and Periods of Time</td>
<td>15 August 2018 2018-08-15 20180815 18-08-15 180815</td>
</tr>
</tbody>
</table>
| Rec 8          | Unique Identification Code Methodology (UNIC) | Reference system for use between parties as a means of referring to a trade transaction and/or consignment. XXX/YYYYYYYYYYYY/YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY
Table 4.2 UN/EDIFACT Code lists

<table>
<thead>
<tr>
<th>UN/EDIFACT Code list</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1004 Document identifier</td>
<td>To identify a document.</td>
</tr>
<tr>
<td>3207 Country identifier</td>
<td>Identification of the name of the country or other geographical entity as defined in UN/CEFACT Recommendation No. 3.</td>
</tr>
<tr>
<td>3055 Code list responsible agency code</td>
<td>Code specifying the agency responsible for a code list. 3 - IATA (International Air Transport Association) The airline industry's international organization.</td>
</tr>
<tr>
<td>3453 Language name code</td>
<td>Code specifying the language name.</td>
</tr>
<tr>
<td>2379 Date or time or period format code</td>
<td>Code specifying the representation of a date, time or period. 4 – DDMMCCYY - Calendar date C=Century; Y=Year; M=Month; D=Day.</td>
</tr>
<tr>
<td>1082 Line item identifier</td>
<td>To identify a line item.</td>
</tr>
<tr>
<td>5125 Price Code Qualifier</td>
<td>Code qualifying a price. AAB - Calculation gross The price stated is the gross price to which allowances/charges must be applied.</td>
</tr>
<tr>
<td>6411 Measurement unit code</td>
<td>Code specifying the unit of measurement.</td>
</tr>
<tr>
<td>1131 Code list identification code</td>
<td>Code identifying a code list. 3 - Operating status Code list identifying operating status of an entity.</td>
</tr>
<tr>
<td>5025 Monetary amount</td>
<td>Indication of type of amount. 3 - VAT, 3rd value Third VAT value if, for the same rate of VAT, there are 3 different ways to set this value.</td>
</tr>
<tr>
<td>4405 Status Description Code</td>
<td>Code specifying a status. 2 - Done The instruction has been completed.</td>
</tr>
<tr>
<td>6063 Quality type code</td>
<td>Code qualifying the type of quantity. 3 - Cumulative quantity Quantity accumulated.</td>
</tr>
<tr>
<td>3164 City name</td>
<td>Name of a city (a town, a village) for addressing purposes.</td>
</tr>
<tr>
<td>1154 Reference identifier</td>
<td>Identifies a reference.</td>
</tr>
<tr>
<td>4025 Business function</td>
<td>ADV - Advance payment The reason for payment is advance payment.</td>
</tr>
<tr>
<td>5482 Percentage</td>
<td>Value expressed as a percentage of a specified amount.</td>
</tr>
<tr>
<td>6162 Range minimum</td>
<td>Minimum of a range</td>
</tr>
<tr>
<td>7383 Surface or layer code</td>
<td>Code specifying the surface or layer of an object.</td>
</tr>
<tr>
<td>9141 Relationship type code qualifier</td>
<td>Code qualifying a type of relationship.</td>
</tr>
</tbody>
</table>

Source: UN/EDIFACT Data Element Directory. Available at: [https://service.unece.org/trade/undid/d11a/tred/tredi1.htm](https://service.unece.org/trade/undid/d11a/tred/tredi1.htm)
Benefits

The encoding of trade data is a very efficient and secure way to exchange information. Using code lists for trade data has various advantages:

- Information is precise, unambiguous and language neutral;
- All partners in the supply chain use the same information;
- Code lists are important for automated data processing;
- Code lists are maintained by maintenance agencies, ensuring high quality;
- Worldwide usage by World Customs Organization (WCO), International Air Transport Association (IATA), Universal Postal Union (UPU) etc.

4.3 United Nations Trade Data Element Directory (UNTDED)

Definition

The United Nations Trade Data Elements Directory (UNTDED) is a repository with semantic definitions of important data elements used in international trade; it is an internationally agreed dictionary comprising a set of data elements intended to facilitate an open interchange of data in international trade. The UNLK recommends using UNTDED to define information in the trade document.41

Concept

The definition of data objects based on an internationally accepted standard simplifies the cross-border exchange of data and harmonizes procedures. Each UNTDED element consists of a data element tag in the form of a four-digit number, a name (informative) and a semantic description. In addition, the data element may have a reference to a United Nations recommended code list (Table 4.2).42

Table 4.2 Example of a UNTDED data element

<table>
<thead>
<tr>
<th>Tag UID</th>
<th>New Name</th>
<th>Description</th>
<th>Repr.</th>
<th>Business Term</th>
<th>Location, Bridges</th>
</tr>
</thead>
<tbody>
<tr>
<td>3430</td>
<td>Insurer at Destination Agent. Party Identification. Text</td>
<td>Name and address of the agent of the insurer's at the place of destination</td>
<td>an..512</td>
<td>Insurer's Agent at destination</td>
<td>UNLK:an..35×5; L 50-54, P 09-44</td>
</tr>
</tbody>
</table>


Benefits

There are numerous advantages in defining the data content of a trade document using the terms of UNTDED. These include

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• More clarity on the information requirements and the responsibilities of the parties which reduces risks and ambiguities, increases transparency, and allows standardization and documentation of the business process.

• Allows a non-technical description of trade information. It is a method used to describe information requirements from the perspective of business or administrative experts. The definition is syntax neutral and provides the basis for a later automation of the document for paperless trade.

• Defining the data content in terms of the UNTDED allows to directly compare different trade documents and their data requirements. This helps identify duplication and reduce the number of documents to the strict minimum.

4.4 Paper to electronic

Background

In the current world, international trade largely depends on the rapid exchange of goods, services and money, which in turn depends on the flow of information—in particular, the documents that contain this information. Since documents are about transmitting this information, semantics (the meaning of each data field) is the most important aspect to consider when moving from paper to electronic.

Moreover, the movement of goods accelerates due to modern containerization and new technologies and additional documents are required in the light of these developments. UN/CEFACT has been working on electronic trade documents since the 1980s. In 2017, the 11th Ministerial Conference in Buenos Aires called on WTO members to “reinvigorate” the discussion on paperless trade and to work on a specific outcome in the area.43

Concept44

Standard aligned paper documents can be extended into electronic documents using several steps.

STEP 1: Development of a Document Data Model

Electronic documents require precise definitions of the structure of the data. Based on the data requirements defined in the BCG (see Section 0), a detailed data model is developed based on the UN/CEFACT Core Component Library (CCL). The CCL—syntax-neutral library of semantic data and its structures (Section 0)—can be used to build an electronic trade document, thus simplifying the development of the document data model. The data models will reflect all the data requirements in the context of the data exchange. This information will be hierarchical in nature to reflect relationships between data (e.g. a seal number will be associated to the container on which it is affixed).

Modelling expertise, knowledge of the business process and the use of modelling tools are required to develop a good data model.

STEP 2: Transferring the document data model into an electronic syntax.

Upon the development and approval of the data model, the development of an XML is a straightforward task. UN/CEFACT XML Naming and Design Rules provide the technical specification for the transformation of a CCL data model into XML syntax. Modelling tools that incorporate this specification, allow for the direct export XML formats from the data model. Resulting XML Schema can be used directly for electronic document interchange (see Image 4.8).

**Image 4.8. XML schema generated by the export of the data model.**

Source: UNECE, ESCAP and UNNExT.

STEP 3: From the electronic document back to paper

Based on aligned trade forms, BCG style sheets can be developed that render the electronic XML document in PDF formats which meet the exact specification of the aligned document. A style sheet is a set of instructions that render the data in XML into a specific format.

By opening the style sheet and the XML documents together, the document is visualized in the UNLK format (see Image 4.9).

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45 United Nations Network of Experts for Paperless Trade and Transport in Asia and the Pacific (UNNExT)
Once printed the document is fully compliant with the UNLK.

4.5 UN/EDIFACT

Definition

The United Nations Electronic Data Interchanged for Administration, Commerce and Transport (UN/EDIFACT) is the global Electronic Data Interchange (EDI) standard developed and maintained by UN/CEFACT. It allows for business documents such as purchase orders, invoices, and customs declarations to be exchanged and processed electronically with a minimum human intervention.\(^{46}\)

Background\(^{47}\)

UN/CEFACT initiated the EDIFACT standard development in the 1980s. In 1987, UN/EDIFACT was officially published by the UNECE WP.4 after the convergence of the United Nations and American National Standards Institute (ANSI) syntax proposals. The UN/EDIFACT Syntax Rules were the proposed as an ISO standard (ISO 9735), providing an additional channel of dissemination. At the same time, the WP.4 appointed three Rapporteurs to coordinate the continuing work in conjunction with the UNECE Secretariat. Jointly, and in conjunction with Advisory and Support Teams, they were the focal point for maintenance of the UN/EDIFACT


\(^{47}\) UNECE online information, UN/EDIFACT Syntax Implementation Guidelines. Available at: https://www.unece.org/trade/untid/texts/old/d423.htm#p1 (accessed 11 December 2018).
Syntax Rules and for proposals for new United Nations Standard Messages (UNSMs). Since its inception, various international organizations have significantly contributed to the development of the UN/EDIFACT and once published, they subset the messages into guidelines for specific sectors in their areas of interest.

**Concept**

The UN/EDIFACT standard consists of the following: (i) a set of syntax rules to structure data; (ii) an interactive exchange protocol (1-EDI), and (iii) standard messages which allow multi-country and multi-industry exchange. As of 2018 it contains approximately 209 business messages, updated twice a year. These messages cover multiple domains including customs (customs declaration, cargo report); commercial (invoices, orders, remittance advice); transport (bill of lading, manifest); logistics (dispatch advice, shipping instruction, inventory report; master data (price catalogue); and other industries (retail, container handling).

**Benefits**

The UN/EDIFACT is widely used by international organizations and public and private sectors such as transport and logistics, retail, customs, healthcare, agriculture and insurance.

EDI provides multiple benefits including streamlined and cost-efficient business processes, increased consumer and patient safety through reliable traceability systems, and significant environmental improvement by reducing paper and optimizing the use of transport vehicles and infrastructure.

The UN/EDIFACT standard is well suited to achieve these benefits since:

- More than 25 years of development has provided a solid and rich content applicable to thousands of business processes;
- The standard is continually maintained to ensure that it is adapted to changes in processes, regulations and new areas;
- Throughout the years, the principle of “background compatibility” has been enforced, meaning the users of different versions can exchange messages without problems; and
- The high and increasing number of users ensures a wide pool of expert knowledge globally and affordable software.

### 4.6 Core Components Library (CCL)

**Definition**

The United Nations Core Component Library (UN/CCL) is a library of business semantics in a data model which is harmonized, audited and published by UN/CEFACT. The CCL uses the Core Component Technical Specifications (CCTS) to ensure consistency and interoperability. The library has contributions from many organizations including governments and businesses and deals with Cross Border Trade messages for Buy, Ship and Pay business processes.\(^{48}\)

**Concept**

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While in a paper document, information can be represented in free text. In official forms or business documents information is commonly presented in structured boxes requiring the entry of specific information related to parties, places, transport or goods details. For automated systems to interpret this information correctly it must be structured in a specific way within an electronic message. For this to work, both the receiving and sending parties must use the same semantics (or basic meaning) for each data component. Therefore, the UN/CCL was developed to provide common semantic definitions.

Information within the UN/CCL is grouped into logical aggregations. Base core components establish basic information entities such as a city’s name. Aggregate core components regroup base core components (or other aggregate core components) into logical entities such as an address that will include the base core component for a city’s name. Each change to a basic core component will be inherited in all its uses. For instance, if the base component “City Name” is changed then it will be changed in all types of “addresses” that include “City Name” and in all the business contexts that use “City Name”.

This requires a strict methodology for creating the base components, the aggregated components, and the components within business contexts. This methodology can be compared to the rules of grammar for a language, which allow language speakers to understand one another. The specifications in the UN/CCTS are not only useful for creating and maintaining the UN/CCL, they can also be used by business analysts, business users and information technology specialists who supply data content and who design applications that use the data definitions from the UN/CCL.

Application

The UN/CCL is used by UN/CEFACT to develop reference data models and business messages. The business messages developed by UN/CEFACT using the UN/CCL can be easily exported into the XML syntax. These UN/CEFACT messages focus primarily on improving the exchange of trade data information among governments, government agencies, industries and private companies. At the same time, the UN/CCL can be used in other syntaxes and data formats because the core components have been specifically designed to be syntax neutral.

Benefits

The UN/CCL has global benefits since:

- It is continually being maintained to ensure that it is adapted to changes in processes, regulations and new areas;
- The increasing number of users ensures a wide pool of experts’ knowledge globally;
- Its free availability supports the development of affordable software tools.\(^{49}\)

In addition, the UN/CCL is one of the key deliverables of UN/CEFACT as it:

- Defines all terms related to trade, providing a common semantic content of data and a common format;

• Contains over a thousand reusable core components provided in their business context;
• Covers all domains of UN/CEFACT;
• Also integrates requirements from other organizations such as the WCO, the US Government, the German Government etc.;
• Is syntax neutral; and
• Can be used to develop messages in specific syntaxes such as EDIFACT or XML.

4.7 Reference Data Model

Definition

Reference Data Model (RDM) is a logical subset of the CCL corresponding to a specific area of activity such as supply chain process or transport and logistics processes. It aims to provide a standard means by which data may be described, characterized and shared. The model can be used whenever business information is being shared or exchanged among businesses, government authorities, and other organizations.

Background

Generally, standards for the exchange of business and international trade data have been focused on static message definitions, representing paper-based trade documents and business processes. This approach was lacking in a sufficient degree of interoperability and flexibility. Therefore, it has been complemented or replaced with real-time supply chain collaboration and data exchange structures using cloud-based services. Reference Data Models (RDMs), developed by UN/CEFACT, introduced this new approach. It “…provides a consolidated list of standardized data and processes for use in a particular business domain, which are globally understandable and exchangeable between parties using common standard data exchange structures.”

Concept

The RDM contains (i) data descriptions which provide means to uniformly describe data, supporting its searchability, identification and sharing; (ii) data context which provides formal descriptions of the specific business circumstances under which data is used based on a set of context categories, and (iii) data sharing established by a Master Data Exchange Structure and Business Data Exchange Structures.

The concept of the RDM assumes that exchanged information generally has a large degree of similarity. Therefore, rather than linking the information to document-specific entities (such as an order) each RDM, for its domain, represents the “Master Data Exchange Structure” which is then used for creating specific “Business Data Exchange Structures” for exchanging
information within a business process. In other words, the “Master Data Exchange Structure” contains the complete information exchange suite potentially required for the domain.\(^{51}\)

The RDM can bring together the data exchange requirements of international trade, procurement, insurance, customs and other regulatory data exchanges based upon the integration of best practices in both trade facilitation and e-business.

Business information is shared and exchanged within a business community or between business communities. The RDMs published by UN/CEFACT are being harmonized within the business community and between RDMs by the UN/CEFACT Library Maintenance experts.

**Benefits**

1. **Semantic interoperability of data.**
   
   UN/CEFACT RDMs ensure standardization of data requirements, formalized definitions and representation formats for data elements. Clear definitions of data elements enhance the way in which data elements are interpreted. A clear representation format and a Master Data Exchange Structure serve as guidance for providing accurate data. They ensure data compatibility and enable data interoperability among stakeholders, resulting in the further facilitation of trade procedures.

2. **Cost reduction**
   
   Simplified and harmonized trade data combined with standardized data exchange structure requirements contribute to reduction in time and costs of international trade transactions.

3. **Single Window Support**
   
   Business Data Exchange Structures—created by UN/CEFACT RDMs—can fulfil all import, export and transit-related regulatory requirements while eliminating redundant data.

4. **Provides links to the UNTDED**
   
   UN/CEFACT RDMs provide valuable references to the UNTDED. To provide clear meaning to the information in the trade documents, the UNLK is recorded in a dictionary that is published by the UNTDED—its elements mainly consist of a four-digit data element tag, a data element name and a description that provides its definition.

5. **Common basis for code lists**
   
   UN/CEFACT RDM data elements may use code lists that were created when trade information was exchanged almost exclusively via paper documents. The RDM reuses and /or refers to existing code lists whenever possible. This ensures that a data element used in one or more RDMs will use or refer to the same code list.

6. **Supports sub-setting international recommended code lists.**
   
   The Model uses a subset of a UN/CEFACT code list. The reuse of existing standard code lists allows implementers of UN/CEFACT standards to avoid mapping different code values from different code lists representing the same information.

7. **Syntax neutral**

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\(^{51}\) From the Master Data Exchange Structure, various Business Data Exchange Structures (collections of information used within particular business processes and structured in a way that covers the business data exchange needs) can be derived.
UN/CEFACT RDM is a subset of the UN/CCL which is based on UN/CCTS (see Section 0). The UN/CCTS provides a methodology to describe the semantic and the logical structure of trade information, independently from the implementation of a specific syntax for data interchange.

8. Common Basis for Standardizing Data

The UN/CEFACT RDM can serve as a basis for developing business data exchanges. It sets out a semantic standard (data definitions) which different development teams within the trade community can adopt as a basis for developing information systems. If all the information systems in the supply chain use the same set of standardized data attributes and semantic rules, they can interpret, in a common way, the exchanged data and automatically process it to achieve their intended business objectives. The UN/CEFACT RDMs provide a common basis for standardizing data for import, export and logistics information. An RDM is a key tool in the development of modern Information and Communication Technology (ICT) applications that need to interchange data with other applications.
1) The United Nations Layout Key is a model form that incorporates agreed specifications on paper size, margins, forms design sheets and presentation of data. It indicates places for the location of specific types of information.

2) Code lists are codified information to be used in documents to constrain input and avoid errors. When filling in forms, instead of keying in free text, a code list will constrain the accepted entry. This is an essential part of the document alignment and data harmonization process for business or government messages. Many of the standard code lists in use today were developed for UN/EDIFACT messages and are published by UN/CEFACT.

3) The United Nations Trade Data Elements Directory (UNTDED) is a repository with semantic definitions of important data elements used in international trade, it is an internationally agreed dictionary comprising a set of data elements intended to facilitate an open interchange of data in international trade. The UNLK recommends using UNTDED to define information in the trade document.

4) International trade largely depends on the rapid exchange of goods, services and money, which in turn depends on the flow of information—in particular on the documents that contain this information. Since documents are about transmitting this information, semantics (the meaning of each data field) is the most important aspect to consider when moving from paper to electronic documentation.

5) The United Nations Electronic Data Interchanged for Administration, Commerce and Transport (UN/EDIFACT) is the global Electronic Data Interchange (EDI) standard which allows for the interchange data—business documents such as purchase orders, invoices, and customs declarations—to be exchanged and processed electronically with minimum human intervention.

6) The United Nations Core Component Library (UN/CCL) is a library of
SECTION 5
BUSINESS PROCESS ANALYSIS

This Section will discuss the purpose of Business Process Analysis (BPA) for simplification of formalities and documentary procedures and will explain the three phases of a business process analysis project, and how to draft recommendations to re-engineer business processes based on findings from a BPA. It will also briefly present the results of four BPAs conducted earlier and outline the recommendations for governments to improve the existing procedures. For more detailed guidelines on how to carry out a BPA, please refer to the UNNExT, ESCAP and UNECE Guide on Business Process Analysis for the Simplification of Trade Procedures.52

5.1 Definition and purpose of Business Process Analysis (BPA)

Business Process Analysis (BPA) is defined as a systematic examination of business processes to gain a better understanding of existing operations and to develop improved strategies to increase the efficiency and effectiveness of these operations.53 It describes the processes involved, the participating parties, and the exchanged information and documents. In the framework of trade facilitation, BPA describes a chain of logically connected activities to move goods and related information across borders from among involved stakeholders and provide related services.

BPA is recommended as the first step to be taken before undertaking other trade facilitation measures related to the simplification, harmonization, standardization and automation of trade procedures and documents. A BPA normally leads to the identification of duplicated and redundant procedural and documentary requirements which cause delays, and which can and should be eliminated. The second objective of BPA is to provide a benchmark for measuring progress in the implementation of trade facilitation measures over time. Initially, it is important to obtain a clear and detailed picture of the “as is” business processes involved in importing or exporting, as it will provide a sound basis for the selection and prioritization of trade facilitation measures aimed at streamlining these processes (see Image 5.1).54

53 Ibid.
54 UNNExT and ESCAP online information. Available at :https://unnext.unescap.org/content/business-process-analysis-simplify-trade-procedures-case-studies
The primary objective of a BPA is to understand the attributes of business processes and relationships among them. It describes the processes involved, the parties participating, the information exchanged, and the documents produced. The results of the BPA lay the groundwork for the implementation of further trade facilitations measures including, *inter alia*, simplification of trade procedures (commercial, transport, regulatory and financial); simplification of documentary requirements and their alignment with international standards; automation of international trade transactions and the associated development of electronic documents for Single Window and paperless trade systems. In addition, BPA results can provide a basis for trade policy reform, advocacy of trade facilitation, and intra-regional trade policies for trade facilitation. Other benefits of BPA include understanding the current situation and using that as a benchmark for the monitoring and measuring of progress in the implementation of trade facilitation in a given country, and comparing it to other countries. Therefore, BPA helps to discover issues and to highlight priorities for improvement, which is a stepping stone for the creation of better, future processes like process simplification.

In the context of trade facilitation, the main deliverables of the BPA include:

- Use case diagrams showing the scope of the business process analysis project;
- A set of activity diagrams, each explaining a core business process as represented by a use case diagram;

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• A set of process descriptions, each providing a textual description of an activity, plus related information such as relevant laws, rules, and regulations, documentary requirements, inputs and criteria to enter/begin the business process, and output and criteria to exit the business process etc.;

• A list of trade and transport forms and documents which may be accompanied with samples of physical copies;

• An integrated activity diagram and a time-procedure chart;

• A list of identified bottlenecks; and

• Recommendations to improve the business process and/or to-be business process models.

5.2 Three phrases of BPA.

As outlined in the Business Process Analysis Guide, developed jointly by the UNECE and ESCAP under the UNNExT project, the BPA consists of three phases that are carried out in sequence.58

Phase I: Scope Setting

The objective of this phase is to establish the scope of the project and the business process being analysed. This is the baseline for the implementation and management of a business process analysis project. The Scope Setting Phase is further divided into two steps which include (i) defining the project scope and (ii) developing a detailed work plan and ensuring resources.

Step 1 – Define the project scope

The objective of Step 1 consists of identifying the frame of reference for the subsequent detailed business process modelling work. This frame of reference demonstrates the high-level business processes and actors associated with each of them. During this step, “a business domain”—usually the name of the industry (e.g. export of grain) or service (e.g. customs procedures)—is identified.

To initiate the BPA, it is crucial to identify

• The process or set of procedures that are to be analysed—e.g. only Customs clearance or payment process, or the entire set of export procedures from the factory floor to the port of unloading (along with the import procedures); and

• The environment and conditions in which the industry of interest operates, and which shall be included in the BPA: i.e. mode of transport, terms of delivery, terms of payment, and country of destination (given that regulatory requirements vary from one country to another).

In the context of this project, the scope of the BPA will be determined by the selected sectors in goods or services. With respect to goods, it is essential to determine in what echelon of the global value chain the sector is operating and what is the regional value chain, e.g. imports of inputs and trade of intermediary products. Feedback from the private sector and background research by international organizations, are essential to determine the scope of the BPA.

To depict the frame of reference a case diagram is generally used (Image 5.2). It aims to present a graphical overview of core business processes that are subject to review. In addition, the diagram depicts all the stakeholders involved in the processes and shows how these processes and the stakeholders relate to each other.  

**Image 5.2 Use of Case Diagram**


**Step 2 – Develop a work plan and secure resources**

The objective of Step 2 is to develop a detailed work plan which would provide guidance and management of the BPA implementation. The preparation of the work plan should be based on the use of case diagrams developed in Step 1. Subsequently, the work breakdown structure can be developed. An output-oriented description of project tasks as summarized in the work breakdown structure that serves as a basis for project time, cost, and effort estimation.

Generally, this Step includes the following activities:

- Identification and sequencing of tasks;
- Development of project schedule and estimation of efforts; and
- Development and approval of a detailed project plan.

**Phase II: Data Collection and Process Documentation**

It is generally the private sector and the government agencies who possess the information involved in the business processes under investigation. The procedural aspect of the business

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process is usually not documented and the information about the current business processes is generally shared between the employees who perform these tasks.

The objective of Phase II is to unveil this information and document it. Afterwards, the documentation can serve as a baseline to analyse and improve the existing business processes. This Phase consists of acquiring background information, conducting interviews and documenting captured data.

**Step 3 – Acquire background information**

As a first step, process analysts should acquire as much background information as possible through desk research; public online information and information portals; and the inquiry points of government agencies and the businesses involved. This research will provide analysts with useful leads and more efficient and effective capture of the information for the preparation of the second step: face-to-face interviews.

**Step 4 – Conduct interviews and document captured data**

The objective of Step 4 is to collect further information by conducting face-to-face interviews with process participants/business domain experts. Face-to-face interviews are the most commonly used data collection method for business process analysis.

This process aims, firstly, to confirm the accuracy of the previously obtained information, and, secondly, to fill in the gaps and gain a more in-depth understanding of each use case or core business process in question. After the interviews, all the information is consolidated and documented. It contains the following outputs:

- a set of activity diagrams;
- a set of process descriptions;
- an integrated activity diagram; and
- a time-procedure chart.

As illustrated in Image 5.3, the activity diagram is an elaboration of each business process displayed in the use case diagram (Image 5.2). It portrays a sequence of activities and information flows from one responsible party to another. It informs its audience not only who is doing what in which order, but also documentary inputs that serve as prerequisites to activities and documentary outputs that can be obtained upon completion of activities.
Image 5.3 An activity diagram explaining “prepare export permit” use case

<table>
<thead>
<tr>
<th>UML Use Case Diagram</th>
<th>UML Activity Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image.png" alt="Diagram" /></td>
<td><img src="image.png" alt="Diagram" /></td>
</tr>
</tbody>
</table>

UML Use Case Diagram and Activity Diagram are used to visualize the captured knowledge of the business processes. The use case diagram illustrates high-level business processes and actors associated with each of them. It serves as a frame of reference for further elaboration of business process modeling work. The activity diagram, on the other hand, describes activities, inputs, and outputs associated with each business process listed in the use case diagram.


Once the revision on process description is no longer required, process analysts integrate all activity diagrams of the business processes associated with all use cases defined earlier into a single integrated activity diagram (Image 5.4). It represents an interconnected view of business processes used in an industry or to provide a particular service. The integrated activity diagram illustrates the relationships between core business processes, process participants, and information flow throughout the area under the scope of the study.
Further, process analysts present a time frame—the average time it takes to complete the processes—and a timeline, the time in which core business processes occur in relation to other core business processes, either sequential or simultaneous, in which core business processes are carried out in a time-procedure chart (Image 5.5).
Phase III: Process Analysis and Recommendations Development

Once the business processes have been clearly defined and documented, a better understanding of the “as-is” existing process is obtained. Based on these results, recommendations for improvement can be developed. Moreover, international recommendations and other countries’ best practices on trade and transport facilitation (and standards) can be considered and applied. Phase III also includes two steps: analysis of the “as-is” process and development and proposal of recommendations.

Step 5 – Analyse the “as-is” processes

The objective of Step 5 is to identify the bottlenecks and opportunities to improve the “as-is” processes, and subsequently to develop a set of observations related to it—that is, identification of duplicated and redundant procedural and documentary requirements which cause delays.

Step 6 – Develop and propose recommendations.

The purpose of Step 6 is to develop recommendations that would help to eliminate bottlenecks and inefficiencies of procedures and documentary requirements in the examined business process. These recommendations should also enhance transparency in trade and border procedures in a way that does not impede trade facilitation. The measurable benefits of implementing these recommendations may include improved trade competitiveness resulting from a reduction in trade transaction costs, increased foreign direct investments (FDI) due to a
more predictable and certain business environment, and greater participation of SMEs and MSMEs in international supply chains.

5.3 Case study

Table 5.1 presents the results of four BPAs. The first BPA on the export of jasmine rice from Thailand to the United States was conducted in 2009. The three following BPAs were conducted in Central Asia during 2013-2015. They analysed imports or export of products strategically important for Kyrgyzstan and Kazakhstan, namely:

- Exports of processed fruits from Kazakhstan to Kyrgyzstan;
- Exports of cereal products from Kazakhstan to Azerbaijan; and
- Exports of fabric from China to Kyrgyzstan.

The core business processes in all the analyses are categorized into three process areas (Buy, Ship, and Pay) as outlined in the UN/CEFACT International Supply Chain Model (Section 2.1). Table 5.1 provides a summary of the number of stakeholders involved in each process, number of core processes and activities associated with these processes, and the number of days required to finalize a specific process. As shown below, the largest number of core processes and activities related to the documentary requirements fall into the SHIP domain—e.g. export of rice from Thailand to the US includes 12 processes, 134 activities involving documentary requirements and up to 12 stakeholders—while export of fabric from China to Kyrgyzstan includes 21 processes, 132 activities and 19 stakeholders. Export of fruit from Kyrgyzstan to Kazakhstan can take up to 1.5 months, while export of fabric from China to Kyrgyzstan can take up to two months.

### Table 5.1 Business Process Analysis results in selected economies

<table>
<thead>
<tr>
<th>Business process</th>
<th>Export of rice from Thailand to the US</th>
<th>Export of fruits from Kyrgyzstan to Kazakhstan</th>
<th>Export of cereal products from Kazakhstan to Azerbaijan</th>
<th>Export of fabrics from China to Kyrgyzstan</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BUY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Business processes/Activities and associated documentary requirements</td>
<td>1/6</td>
<td>1/8</td>
<td>1/9</td>
<td>1/16</td>
</tr>
<tr>
<td>Number of stakeholders involved</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Number of Days</td>
<td>2</td>
<td>7-14</td>
<td>5</td>
<td>1-2</td>
</tr>
<tr>
<td><strong>SHIP</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Business processes/Activities and associated documentary requirements</td>
<td>12/134</td>
<td>12/97</td>
<td>9/70</td>
<td>21/132</td>
</tr>
</tbody>
</table>

As illustrated in the four BPAs, export/import business processes are rather cumbersome and require many steps. To some extent it might be attributable to the nature of export items, as these agricultural items are subject to multiple tests (e.g. inspection for the export of rice, fumigation and preparation of documents for the importer) required by the Department of Agriculture of Thailand. Such requirements do not exist, for instance, for various industrial and manufactured products. In addition, it also appears that a lack of harmonized data is a common impediment in the four cases. For procedures such as inspection and fumigation, harmonization of data requirements across different permits and certificates can remove the need for multiple submissions of identical pieces of data. Moreover, electronic sharing of this data among Customs agencies and other regulatory agencies, as well as the alignment of data with international standards, can significantly simplify the documentary procedures and formalities.

In addition, some specific recommendations for the export of rice from Thailand to the US include the following: (i) integration of information systems of government agencies involved in the export of jasmine rice; (ii) publication and easy access to all laws, regulations, and rules related to the procedures; and (iii) review of existing laws, regulations, and rules with the objective of making sure that they are precise and straightforward for all relevant parties.61

Likewise, some specific issues and recommendations related to export/import of products in Central Asia include, *inter alia*:

- A lack of mutual recognition of trade documents: For instance, in the case of processed fruit exports from Kyrgyzstan to Kazakhstan, the phytosanitary certificate issued in Kyrgyzstan must be reissued inside Kazakhstan’s territory, behind the border, creating a longer and costlier process. With respect to cereal exports from Kazakhstan to Azerbaijan, the lack of recognition of phytosanitary and other certificates issued in Kazakhstan by Azerbaijan state bodies adds time to completing business transactions. Therefore, harmonization of regulations and standards related to imports and exports, including recognition of common

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documentation between multiple countries or government agencies, can play a crucial role in facilitating exports.

- Repetitive or redundant procedures/formalities and technological inefficiencies: This is particularly evident when applying for a conformity certificate in the case of processed fruits imports; likewise, in the process of fabric imports from China to the Kyrgyz Republic there are various duplicative procedures throughout the shipping process with respect to weight control. Thus, the reduction of duplicative and redundant processes can be achieved through the elimination of all controlling steps by pooling them together in a single place at the border.

- Lack of efficient electronic data exchange. In various processes, laws, sub-laws and technological schemes for official controls require that trade documents must be submitted in hard copies to multiple agencies, which substantially delays the trading process. Therefore, technological improvements and development of trade-related software are required to improve the efficiency of the entire three-stage process. In addition, implementation of a Single Window mechanism can make the process faster, more transparent and can help reduce corruption.
KEY HIGHLIGHTS

1) Business Process Analysis (BPA) is defined as a systematic examination of business processes to gain a better understanding of the operations and to develop improved strategies to increase efficiency and effectiveness of these operations.

2) BPA is recommended as the first step to be taken before undertaking other trade facilitation measures related to the simplification, harmonization, standardization and automation of trade procedures and documents.

3) The objective of a BPA is to understand the attributes of business processes and the relationships among them. One of the expected results of BPA, which interests us here, is the identification of duplicated and redundant procedural and documentary requirements which cause delays, and which can and should be eliminated. The second expected result is to provide a benchmark for measuring progress in the implementation of trade facilitation measures over time (if BPAs are carried out periodically) for the products of strategic importance to the economy of the country.

4) The results of the BPA are used for simplification of trade procedures (commercial, transport, regulatory and financial); simplification of documentary requirements and their alignment with international standards; and automation of international trade transactions and associated electronic documents.

5) The BPA has three phases: (i) Scope Setting; (ii) Data Collection and Process Documentation; and (iii) Process Analysis and
SECTION 6
DATA HARMONIZATION AND STANDARDIZATION STEPS AND DEVELOPMENT
OF ELECTRONIC DOCUMENTS

This Section will discuss what data harmonization is and describe its objectives and benefits. It will further explain the four stages of the data harmonization process: capture, define, analyse, and reconcile.

6.1 Introduction to Data Harmonization

Trade Facilitation and Data Harmonization

International trade procedures comprise a wide range of activities ranging from ordering of goods, physical transfer of goods, and payment for goods along the supply chain. They also comprise formalities and practices of collecting, presenting, communicating and processing documents and data to adhere to regulatory and business requirements prior or during the movement of goods across borders. The data required in trade and transport documents is often repeated, and this adds to the complexity. Data harmonization and standardization aims at reuse of data in different documents and processes, thus simplifying the process of collection of data.

Data harmonization also necessitates a project approach with a concrete objective (e.g. to build a Single Window, which needs harmonization of data and documents), a budget and a team allocated to this project. An inter-agency, public-private team working on data harmonization would normally involve technical specialists who bring with them knowledge of the lists of data required to clear documents (for which the agency for which they work is responsible) as well as the document data structures. The team would further discuss definitions of data elements and how the various elements relate to each other, and how they are aligned to international standards and codes. Alternatively, the work on data harmonization could be executed using information from existing automated systems and specialized software designed to assist with data harmonization and alignment to international standards and codes.

Trade documents and data, both in paper or electronic format, are essential as they provide the means to exchange information associated with commercial, transport, regulatory or financial procedures. However, for traders, information requested in these documents often poses obstacles to trade, especially when they must submit this data several times in different formats, using different codes and definitions. If trade documents and the accompanying procedures are cumbersome, repetitive and non-standardized they become a major deterrent to access to markets. According to a study by APEC, each international trade transaction requires an average of 40 documents to meet the rules and regulations set for international trade and transport—often with repeated data. These documentary requirements are often very costly and make cross-border trade more cumbersome. Similarly, a study undertaken by the European Commission demonstrates that the cost of compliance with these requirements may be as high as 3.5 to 7 per cent of the value of goods.


Ibid.

62
63
Therefore, harmonizing and standardizing data across documents and processes is a major tool for streamlining procedures and simplifying documents, and can significantly reduce transactions costs, improve trade competitiveness—and therefore create benefits for governments, businesses and consumers. In the context of trade facilitation, the scope of data harmonization covers the data requirements of all stakeholders in the international supply chain.

What is Data Harmonization, and what are its objectives?

Data harmonization is defined by UN/CEFACT Recommendation No. 34 as an interactive process of capturing, defining, analysing and reconciling government information requirements, and data standardization. It also includes mapping and alignment of streamlined data to international standards. It comprises a set of actions and activities that improve the consistency in the use of data elements in terms of their meaning and representation format. It is usually undertaken at the semantic level before considering document structures. Through data harmonization, a set of core data elements (data elements expressed using different vocabularies but with identical meaning) can be extracted. Some examples of core data elements are shown in Image 6.1.

Image 6.1 Examples of Core Data Elements

![Core Data Elements](image6_1.jpg)


The practice of sharing common data/information with business partners can contribute to a more efficient use of data. This data/information can be reused in a way that benefits organizational objectives and goals. Moreover, with the automation of document and information exchange, the necessity for data harmonization becomes even more important. An electronic document can be a data carrier that facilitates data sharing and reuse beyond what a paper document can offer.

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In the context of trade facilitation and streamlining documentary formalities, the objective of data harmonization is to eliminate duplication and redundancies in international trade data, across different document and processes. It enables data interoperability among individual information systems in the international supply chain by producing a set of harmonized core data elements aligned with a semantic standard.65

**Benefits of data harmonization**

The harmonization of required data includes harmonization and formalization of the definition and representation format of data elements used by various stakeholders. It allows for:

- The reduction of information requirements by eliminating redundancies and duplications, (thus making the submission easier) but also allows for the reuse of data elements already collected;
- The provision of clear definitions of data elements which enhance the way in which data elements are interpreted—therefore it reduces the risk of errors, costs and delays;
- The facilitation of the receiving, processing and checking of information; and
- The simplification of the exchange of data and improvement of automation, thereby ensuring interoperability.66

UN/CEFACT Recommendation No. 34 proposes a four-step approach for data harmonization.

**Selection and role of a Lead Team in Data Harmonization**

The best way to start the simplification and standardization process is to form a team dedicated to the task. Appointment of team members should include a person to serve as a liaison with the governmental authorities and border agencies, serving as a conduit for information to and from the lead agency. In turn, each governmental agency must identify a primary contact for organizing the information inventory and participating in the simplification and standardization process. The involvement of the trading and transport community (and other relevant stakeholders) at the earliest possible moment within this process is crucial to establish consensus on business needs and realities, and the ability of commercial systems to provide good record of the required information. Therefore, it is essential to include representatives of the trade and transport community in the simplification and standardization team. These representatives need to be able (authorized/empowered) to speak on behalf of, and engage with, their administrations.

In addition, an important aspect of team selection is to ensure that members have the skillset to undertake the tasks of simplification and standardization. The team must have

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65 UNECE, EXCAP, UNNExT (2012). Data Harmonization and Modelling Guide.
extensive and practical knowledge of international trade, business practices, commercial procedures and information requirements. Likewise, it should include data architects and modellers who understand data coding, structure, and modelling. This approach should eliminate the risk of errors that would later need to be reviewed and corrected, particularly when modelling the data set, to achieve optimum re-usability and to ensure a high degree of interoperability in bilateral and multilateral cross-border data exchange projects or operations.

Communication of the simplification objectives, procedures, and steps is critical. After organizing the simplification team, the next step is to hold a series of meetings and briefings for the governmental agencies to clearly define the roles and responsibilities of the simplification group. After the “kick-off” briefing, the agency participants should understand the overall process of data simplification; the purpose of one-on-one meetings with data architects; the work sessions in which the agency should participate; and the approach planned for the work sessions, including the role and responsibilities of the agency.

6.2 Capture data requirements in trade documents

The initial step in a data harmonization process is to capture data requirements in trade, transport and related documents. This exercise requires the preparation of a National Trade Data Inventory. This involves capturing individual Governmental agencies’ information requirements through identifying and listing the data elements in specific documents, with concrete indication of the data structure in each document. This can be accomplished through (i) each agency, responsible for a certain document, preparing a list of data elements with the data elements’ names, definitions, and the codes used (from a specific code list); (ii) a review of the automated system requirements, regulations and administrative processes; and (iii) an examination of the documents and data, as they are used by the business community to conduct trade transactions, with a review of the commercial records and business systems operated to initiate, reconcile and fulfil the sales contract (domestic or cross-border). The collected information (lists of data) could be organized in a spreadsheet or other software tool.

If the country has an automated trade processing system, information requirements can also be found by using a logical data model. Initially, the information requirements can be arranged in a spreadsheet or similar software application such as a database. In this case, the listing of data elements will already guide the harmonization experts to where there is use of common elements. The use of a database could also add greater flexibility by allowing links to multiple tables with the enhanced ability to cross-reference the information requirements.

6.3 Define data in each document and define semantics of the data and data formats

The objective of this step is to obtain a precise description of the data requirements. This step prepares a record by giving (i) the name, definition and representation (text, format or code) of each data element; (ii) when the information is required (for release, declaration, pre or post control); and (iii) the legal base allowing the relevant agency to demand, collect, view and retain (archive) the information.
At a minimum, the record of the captured data requirements should incorporate the following information:

- **Agency element number**: a reference number for the data element;
- **Data element name**: the name of data element being defined;
- **Data element description**: definition of the data element;
- **Data element domain**: format, alpha, numeric and alpha-numeric;
- **Mode of transport**: to what mode of transport this data element can be related;
- **Process**: import, export, transit;
- **Category use**: cargo, means of transport, crew, or equipment;
- **Data source**: importer, exporter, customs broker, carrier, agent, consignor, consignee, freight forwarder.

Another essential element is the legal authority that collects the data. Developers may also wish to capture whether the agency is authorized to collect and (or) view the data, the jurisdiction or source of the legal authority (law, regulation, executive order, administrative procedure) and the expiry date of such authority. This list of details is indicative, not exhaustive, and offers examples of the features that should be recorded to permit an accurate assessment of the information requirements. Equally, some fields might be variously defined or described (from the list offered) but the essential feature of this step is to record the data elements and their individual characteristics.

Upon receipt of the survey from the Governmental agencies, the data simplification team must aggregate or merge the agency responses into a comprehensive spreadsheet (Table 6.1).

**Table 6.1 Sample aggregation of results of agency survey**

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Type</th>
<th>Source</th>
<th>Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port of Unloading</td>
<td>Location where goods are removed from the ship</td>
<td>4 digit proprietary code</td>
<td>Carrier</td>
<td>Ship</td>
</tr>
<tr>
<td>Port of Unloading</td>
<td>Airport where consignment is taken off the airplane</td>
<td>4 digit proprietary code</td>
<td>Carrier</td>
<td>Air</td>
</tr>
<tr>
<td>Domestic Port of Unloading</td>
<td>Domestic port where merchandise is removed mode of transport</td>
<td>4 digit proprietary code</td>
<td>Carrier Broker</td>
<td>Air, Rail, Ship, Truck</td>
</tr>
<tr>
<td>Domestic Port of Unloading</td>
<td>Domestic airport where consignment is taken off the airplane</td>
<td>UNLOCODE</td>
<td>Carrier</td>
<td>Air</td>
</tr>
<tr>
<td>Foreign Port of Unloading</td>
<td>Foreign port where merchandise is unloaded from the conveyance</td>
<td>5 digit proprietary code</td>
<td>Carrier</td>
<td>Air, Rail, Ship, Truck</td>
</tr>
<tr>
<td>Foreign Port of Unloading</td>
<td>Foreign airport where consignment is taken off the airplane</td>
<td>5 digit proprietary code</td>
<td>Carrier</td>
<td>Air, Ship</td>
</tr>
</tbody>
</table>

Source: UN/CEFACT Recommendation No 34.

### 6.4 Analyse data elements across various documents and organize them in a comparable manner
The objective of this step is the analysis of the information required for each data element. Establishing the need and use of the information requirement is essential. While the data element is first identified by its name, its meaning (what information is communicated by this data element) and context are more subtle and important. The process of analysing the information consists of gathering together similar data element names and having a full understanding of the definition of each data element and the information requirements.

The data simplification team is responsible for conducting the analysis of the data elements. In Table 6.1 (above), an analysis of the six elements revealed a similarity of names (unloading or unloading), used by different agencies in different documents. In this case, while there were minor variations in the definitions (e.g. domestic or foreign), the essence of the definition is the location where the goods are removed from the transport conveyance. The terms "unloading" and "unloading" are synonyms. Further, the terms "foreign" and "domestic" could be defined by the type of transaction. In the case of export, a foreign location would be shown; and in the case of import, a domestic location would be shown.

6.5 Consolidate the defined and analysed trade data inventory into a rationalized data set through the reconciliation process

The next step in data harmonization is called reconciliation, which prepares a consolidation of the defined and analysed trade-data listing. This process involves the agreement to use one data element name with a common definition across several documents, agencies and processes, as well as (or) common coding. This is reconciled with the international standards: e.g. the United Nations Trade Elements Directory (UNTDED), the Core Components Library, the UN/CEFACT recommended Code Lists, the World Customs Organization Data Model or other data sets.

The case with ports in Recommendation No. 34 (Table 6.1, above) is taken from a real-life scenario that occurred during the data harmonization work in establishing the United States Single Window. A solution was found in the international standards: notably, a reference to a single element in the United Nations Trade Elements Directors (UNTDED) – data element “Consignment.Unloading.Location.Identifier” with UNTDED data element number 3339. A recommendation was made to use the United Nations Location Code (UN/LOCODE) to identify the various codes.

The first step of reconciliation was to arrive at a single data name. The analysis step determined that unloading and unlading were synonyms, so simplification meant designating the use of the term "unloading" for this purpose. Since foreign or domestic could be determined by function (export or import transaction) these words could be eliminated. The reconciled name could become "port of unlading" and this data element was checked against the international standard of the UNTDED. Port of unlading was not in the UNTDED, instead the term that accurately reflected the meaning was "place of discharge." The issue of a coded representation was resolved by agreement to adopt the international standard of the UN/LOCODE (Recommendation No. 16) (Image 6.2, below).
Image 6.2 The simplification and standardization process detailed above

Source: UN/CEFACT Recommendation No. 34.
KEY HIGHLIGHTS

1) Streamlining documentary procedures and simplifying documents can significantly reduce transaction costs, improve trade competitiveness and therefore benefit governments, businesses and consumers. Data harmonization can cover the data requirements of all stakeholders in an international supply chain.

2) Data harmonization can be defined as the iterative process of capturing, defining, analysing and reconciling government information requirements, and data standardization as the mapping of this simplified data to international standards. It comprises a set of actions and activities that improve the consistency of the use of data elements in terms of their meaning and representation format.

3) In the context of trade facilitation, the objective of data harmonization is to eliminate duplication and redundancies in international trade data, in different documents, required by different agencies, and/or in different countries. It enables data interoperability among individual information systems and among documents and processes in the international supply chain by producing a standard set of harmonized core data elements, aligned with a semantic standard.

4) The harmonization of data requirements formalizes the definition and representation format of the data elements used by various stakeholders. It will
   a. Reduce information requirements by eliminating redundancies and duplications, thus making the submission easier;
   b. Provide clear definitions of data elements which will enhance the way in which data elements are interpreted, reducing the risk of errors, costs and delays;
   c. Facilitate the receiving, processing and checking of information;
   d. Simplify the exchange of data and improve automation, ensuring their interoperability across documents and processes.